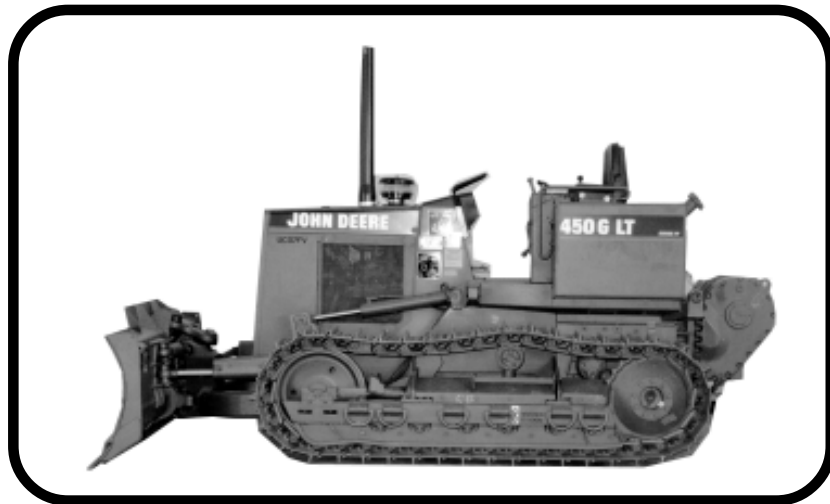


AIRDROP OF SUPPLIES AND EQUIPMENT: RIGGING TRACTORS AND TRACTOR-DOZERS



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Change 3

AIRDROP OF SUPPLIES AND EQUIPMENT: RIGGING TRACTORS AND TRACTOR-DOZERS

1. This change adds the procedures for rigging the Deployable Universal Combat Earthmover (DEUCE) on a 24-foot, Type V platform for low-velocity airdrop.
2. Change FM 10-521, 7 October 1987, as follows:

Remove old pages

i through ii
vii through ix
1-1

Glossary 1
References 1

Insert new pages

i through ii
vii through ix
1-1
10-1 through 10-44
Glossary 1
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FM 10-521
TO 13C7-6-21
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CHANGE
No. 2

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**AIRDROP OF SUPPLIES AND EQUIPMENT:
RIGGING TRACTORS AND TRACTOR-DOZERS**

This change adds the procedures for rigging the John Deere 450G LT full-tracked commercial bulldozer on a 16-foot, Type V platform for low-velocity airdrop.

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AIRDROP OF SUPPLIES AND EQUIPMENT:

RIGGING TRACTORS AND TRACTOR-DOZERS

This change adds the procedures for rigging the D-5B tractor-dozers for low-velocity and LAPE airdrop on the type V platform.

FM 10-521/TO 13C7-6-21, 7 October 1987, is changed as follows:

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WASHINGTON, DC, 7 October 1987

AIRDROP OF SUPPLIES AND EQUIPMENT: RIGGING TRACTORS AND TRACTOR-DOZERS

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PREFACE

SCOPE

This manual tells and shows how to prepare and rig the T-3 tractor-dozer for low-velocity or LAPE airdrop from a C-130 aircraft and low-velocity airdrop from a C-141 aircraft. The D-5B (Type I) and D-5BS (Type II) tractor-dozers are rigged for LV and LAPE airdrop from a C-130 aircraft and low-velocity airdrop from a C-141 aircraft. The D-5 full-tracked tractor and the D-5A full-tracked tractor with sectionalization kit are rigged for LV airdrop from a C-130. The D-5 full-tracked tractor is also rigged for LAPE airdrop from a C-130 aircraft. The D-5 and D-5A full-tracked tractors cannot be airdropped from a C-141 aircraft. The Case 1150 full-tracked crawler tractor can be rigged for LV and LAPE airdrops from only a C-130 with a tail numbers of 61-2358 and 62-1784 or higher. It is also rigged for LV airdrop from a C-141 aircraft. The M450 full-tracked crawler tractor is rigged for LV and LAPE airdrops from a C-130 aircraft. It is also rigged for LV airdrop from a C-141 aircraft. The D-6 tractor is rigged for LV airdrop from a C-130. It cannot be airdropped from a C-141 aircraft. The John Deere 450G LT full-tracked commercial bulldozer is rigged for LV airdrop from a C-130, C-141, C-5, and C-17 aircraft. The Deployable Universal Combat Earthmover is rigged for airdrop from a C-130, C-5, and C-17 aircraft.

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Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men

CHAPTER 1

INTRODUCTION

1-1. Description of Items

The description and unrigged data for the items covered in this manual are described below:

a. T-3 Tractor Dozer. The T-3 tractor-dozers weighs 16,620 pounds. This weight is reducible to 16,160 pounds with the ROPS removed. The tractor-dozers is 158 inches in length. Its width is 96 inches, and its height is 106 inches (reducible to 71 inches). The accompanying load is a swing fire heater. It is 35 inches long, 12 inches high, and 8 inches wide. The swing fire heater weighs 90 pounds when it is prepared.

b. D-5B and D-5BS Tractor-Dozers. The unrigged D-5B and D-5BS tractor-dozers are described below.

(1) D-5B, type I (nonsectionalized). The type I tractor-dozers weighs 31,350 pounds with 3/4 tank of fuel. The weight of the tractor-dozers is reducible to 30,105 pounds with the ROPS removed. The tractor-dozers is 225 inches in length. Its width is 104 inches with the blade angled, and its height is 121 inches (reducible to 82 inches).

(2) D-5BS, type II (sectionalized). The type II tractor-dozers weighs 33,310 pounds with 1/2 tank of fuel. The weight of the tractor-dozers is reducible to 30,570 pounds with the ROPS and the sectionalization kit removed. All other dimensions are the same as those of the type I tractor-dozers.

c. D-5 and D-5A Full-Track Tractors. The unrigged D-5 and D-5A full-track tractors are described below.

(1) D-5 (nonsectionalized). The D-5 tractor weighs 24,815 pounds. The tractor is 188 inches in length. Its width is 96 inches, and its height is 107 inches (reducible to 78 inches).

(2) D-5A (sectionalized). The dimensions for this tractor are the same as those of the D-5 (nonsectionalized) tractor.

d. Case 1150 Full-Track Crawler Tractor. The Case 1150 tractor weighs 22,760 pounds. The weight is reducible to 21,890 pounds. The tractor is 191 inches in length. Its width is 120 inches (reducible to 110 inches), and its height is 113 1/2 inches (reducible to 78 inches).

e. M450 Full-Track Crawler Tractor. The M450 tractor weighs 9,900 pounds. The tractor is 140 inches in length. Its width is 78 inches, and its height is 88 inches (reducible to 67 inches).

f. D-6 Tractor. The D-6 tractor weighs 15,975 pounds. The tractor is 179 inches in length. Its width is 96 inches, and its height is 77 inches.

g. John Deere 450G Lt Full-Track Commercial Bulldozer. The John Deere 450G Lt bulldozer weighs 18,080 pounds. The dozer is 180 1/3 inches in length. Its width is 97 inches and its height is 108 inches (reducible to 77 inches with ROPS removed and the seat back lowered).

h. Deployable Universal Combat Earthmover. The Deployable Universal Combat Earthmover weighs 35,000 pounds. The earthmover is 112 inches high (reducible to 90 inches in the kneeling position with the cab removed).

1-2. Special Considerations

Special considerations for this manual are given below.

a. The loads covered in this manual may include hazardous materials as defined in AFJMAN 24-204/TM 38-250. If included, the hazardous materials must be packaged, marked, and labeled as required by AFJMAN 24-204/TM-38-250.

b. A copy of this manual must be available to the joint airdrop inspectors during the before- and after-loading inspections.

CHAPTER 8

**RIGGING THE TYPE I, D-5B TRACTOR-DOZER
ON THE TYPE V PLATFORM**

Section I

**RIGGING THE TRACTOR-DOZER FOR
LOW-VELOCITY AIRDROP**

8-1. Description of Load

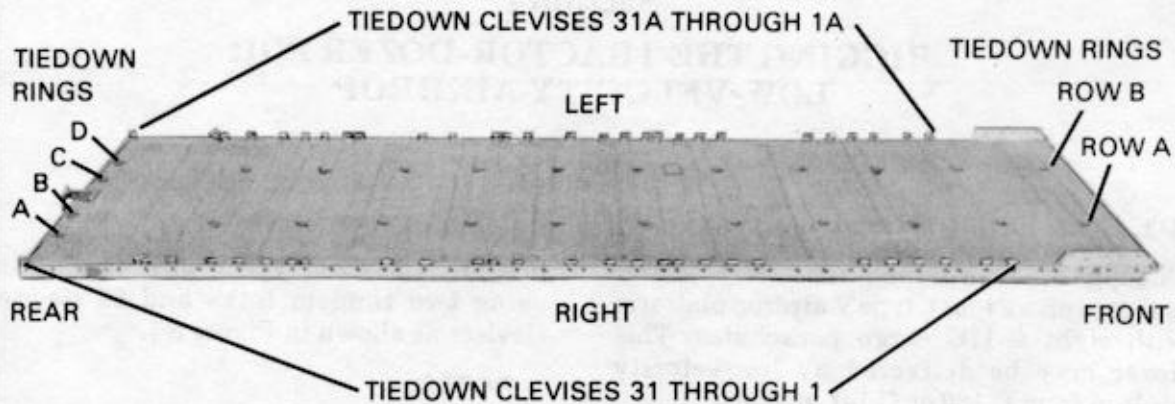
The type I (nonsectional), D-5B tractor-dozzer is rigged on a 24-foot, type V airdrop platform with eight G-11C cargo parachutes. This dozer may be delivered by low-velocity airdrop from C-130 or C-141 aircraft.

8-2. Preparing Platform

Prepare a 24-foot, type V airdrop platform using two tandem links and 68 tiedown clevises as shown in Figure 8-1.

NOTES:

1. The nose bumper may or may not be installed.
2. Measurements given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.



Step:

1. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
3. Starting at the front of each platform side rail, install clevises on each platform side rail using bushings bolted on holes 6, 7, 9, 10, 11, 12, 17, 18, 19, 20, 21, 22, 23, 25, 27, 28, 29, 31, 33, 36, 38, 39, 40, 41, and 42.
4. Bolt a clevis to bushings bolted on holes 37, 43, and 48 in an inverted position (bell portion up) to each side rail.
5. On each side, attach two clevises to the clevis attached to bushing 37, two clevises to the clevis attached to bushing 43, and two clevises to the clevis attached to bushing 48.

NOTE: When numbering the clevises, disregard the inverted clevises.

6. Starting at the front of the platform, number the clevises bolted to the right side from 1 through 31.
7. Starting at the front of the platform, number the clevises bolted to the left side from 1A through 31A.
8. Starting at the front of the platform, number the rows of tiedown rings 1 through 12.
9. Label the two tiedown rings in the first 11 panels A and B from right to left. Label the four tiedown rings in the last panel A, B, C, and D from right to left.

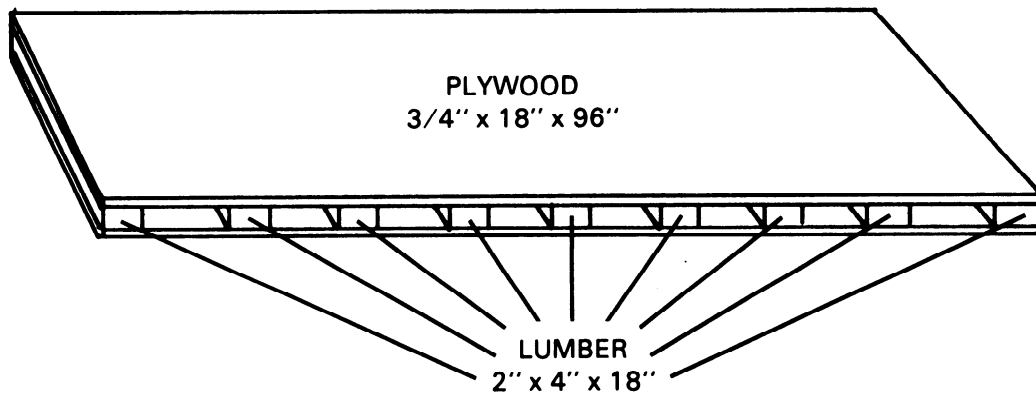
Figure 8-1. Platform prepared

8-3. Building and Positioning Honeycomb Stacks

Build and position the honeycomb stacks as described below.

- a. Build the load spreader for the honeycomb stacks as described in Figure 8-2.

NOTE: This drawing is not drawn to scale.



Step:

1. Use two 3/4- by 18- by 96-inch pieces of plywood and nine 2- by 4- by 18-inch pieces of lumber.
2. Nail one piece of lumber to each end of one piece of plywood. Space the other seven pieces evenly, and nail them in place.
3. Nail the other piece of plywood to the lumber.

NOTE: Use eightpenny nails.

Figure 8-2. Load spreader prepared

b. Build the honeycomb stacks as shown in Figures 8-3 through 8-8.

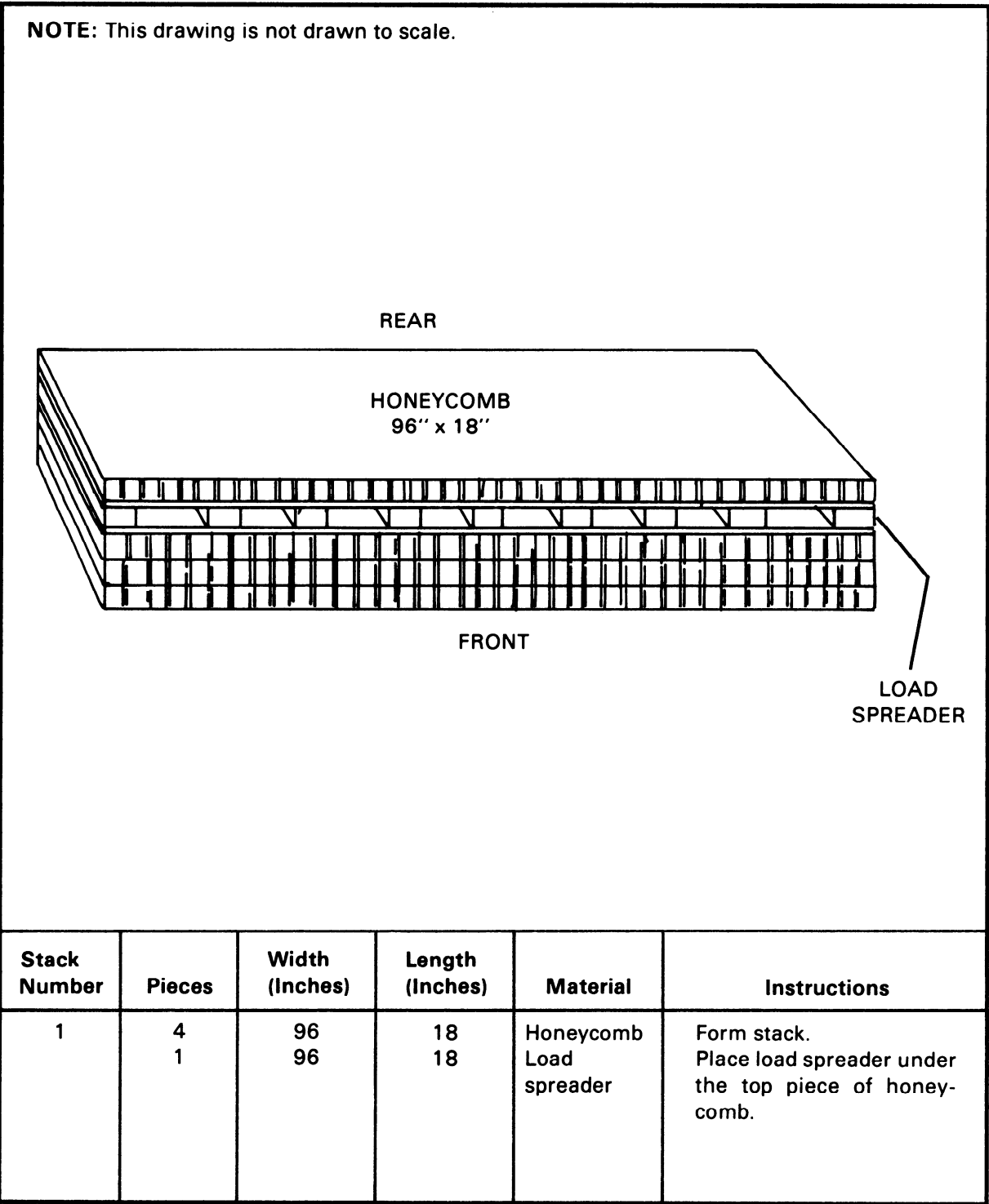
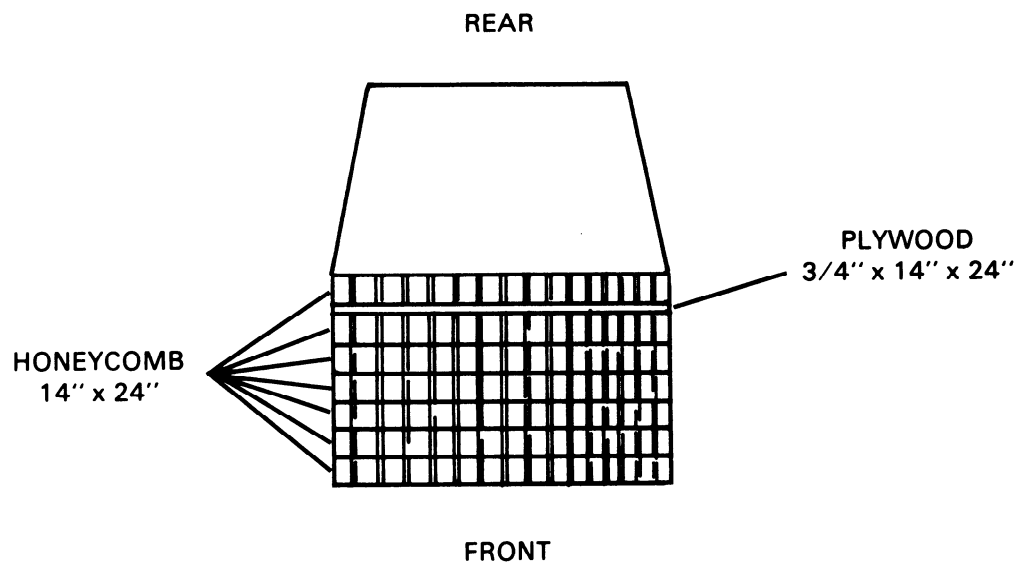


Figure 8-3. Honeycomb stack 1 prepared

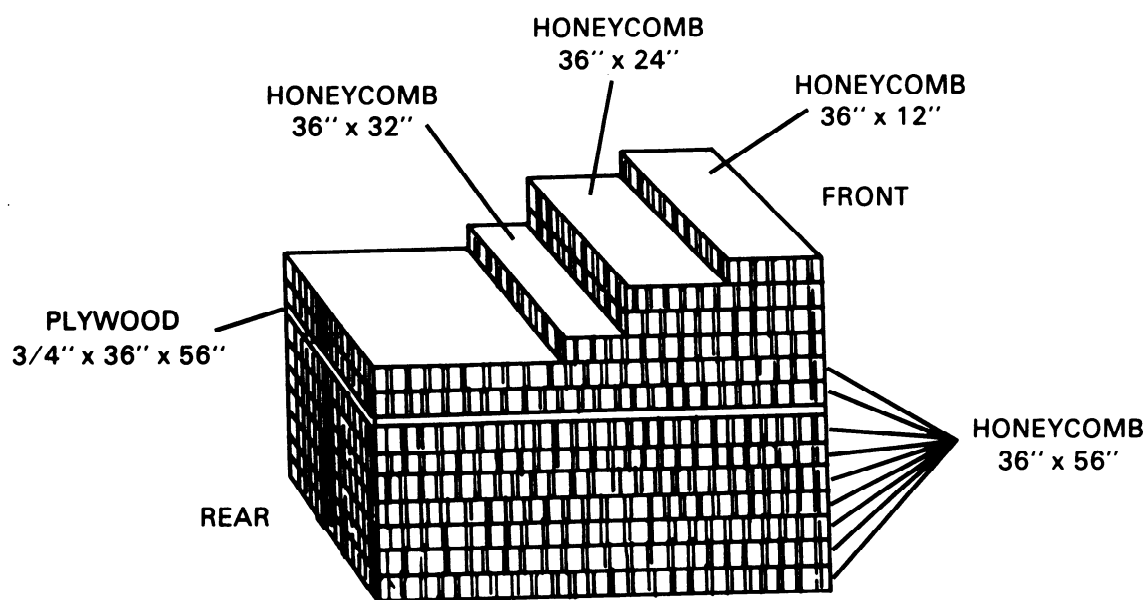
NOTE: This drawing is not drawn to scale.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
2	7	14	24	Honeycomb 3/4-inch plywood	Form stack. Place plywood under top piece of honeycomb.
	1	14	24		
3	7	14	24	Honeycomb 3/4-inch plywood	Same as stack 2.
	1	14	24		

Figure 8-4. Honeycomb stacks 2 and 3 prepared

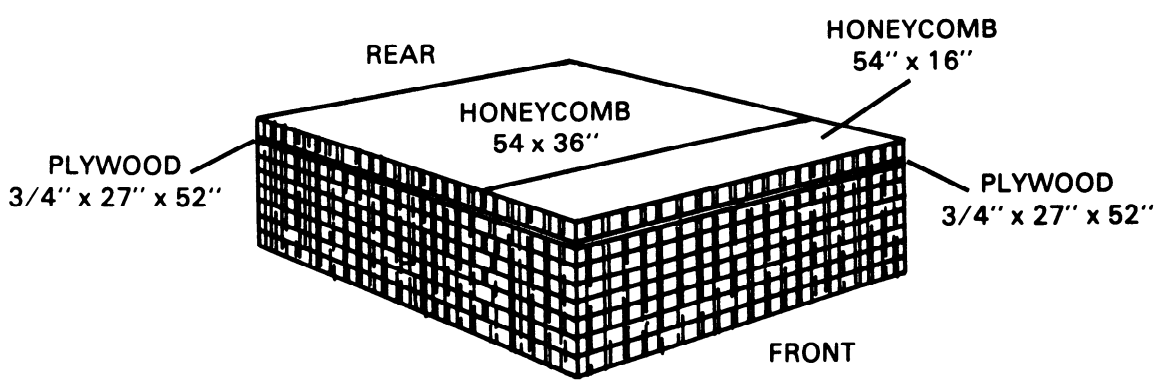
NOTE: This drawing is not drawn to scale.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
4	9	36	56	Honeycomb 3/4-inch plywood	Form base.
	1	36	56		Place plywood under eighth piece of 36- by 56-inch honeycomb.
	1	36	32	Honeycomb	Place honeycomb on top of the base, flush with the front edge.
	2	36	24	Honeycomb	Place honeycomb on top of the 36- by 32-inch honeycomb, flush with the front edge.
	1	36	12	Honeycomb	Place honeycomb on top of the 36- by 24-inch honeycomb, flush with the front edge.

Figure 8-5. Stack 4 prepared

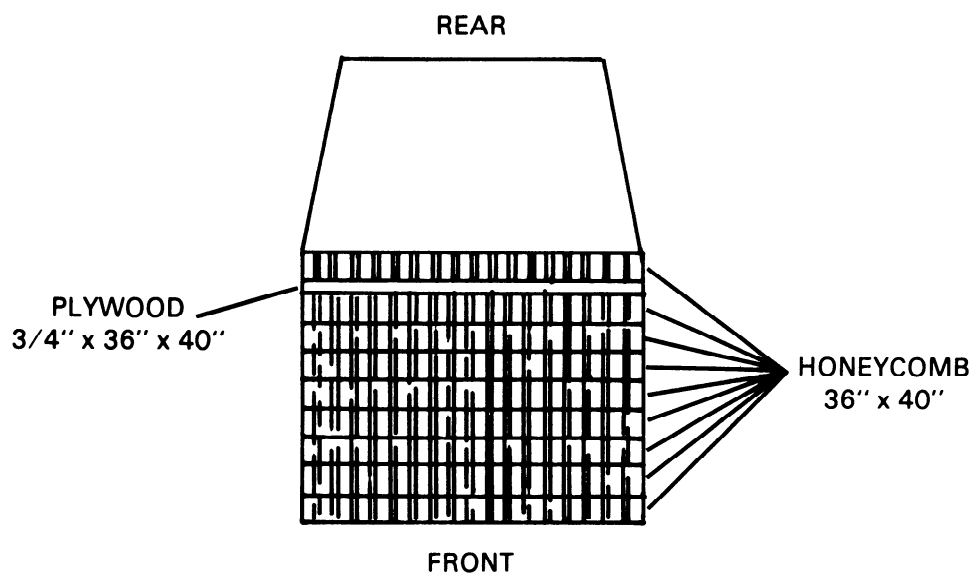
- NOTES:** 1. This drawing is not drawn to scale.
2. Each layer of honeycomb has one 54- by 36-inch piece of honeycomb and one 54- by 16-inch piece of honeycomb. Alternate the ends of the stack with the 54- by 16-inch piece of honeycomb on it.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
5	8	54	36	Honeycomb	Place honeycomb as part of base. Alternate it with 54- by 16-inch honeycomb. Place honeycomb as part of base. Alternate it with 54- by 36-inch honeycomb. Place plywood side by side under top layer of base.
	8	54	16	Honeycomb	
	2	27	52	3/4-inch plywood	

Figure 8-6. Stack 5 prepared

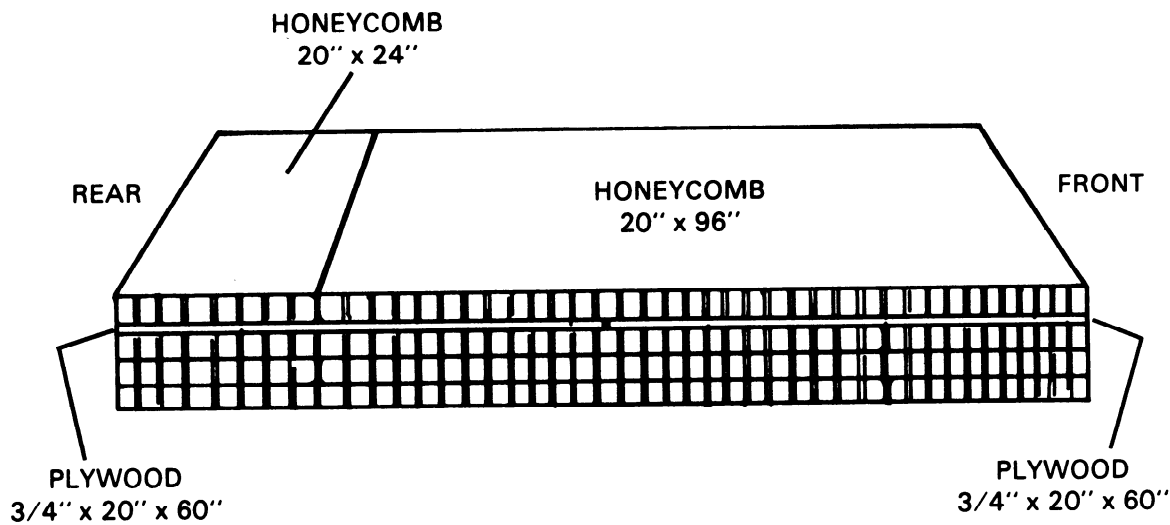
NOTE: This drawing is not drawn to scale.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
6	9 1	36 36	40 40	Honeycomb 3/4-inch plywood	Form base. Place plywood under top layer of honeycomb.

Figure 8-7. Stack 6 prepared

- NOTES:** 1. This drawing is not drawn to scale.
2. Each layer of honeycomb has one 20- by 96-inch piece of honeycomb and one 20-by 24-inch piece of honeycomb. Alternate the ends of the stack on which the 20-by 24-inch piece of honeycomb is placed.



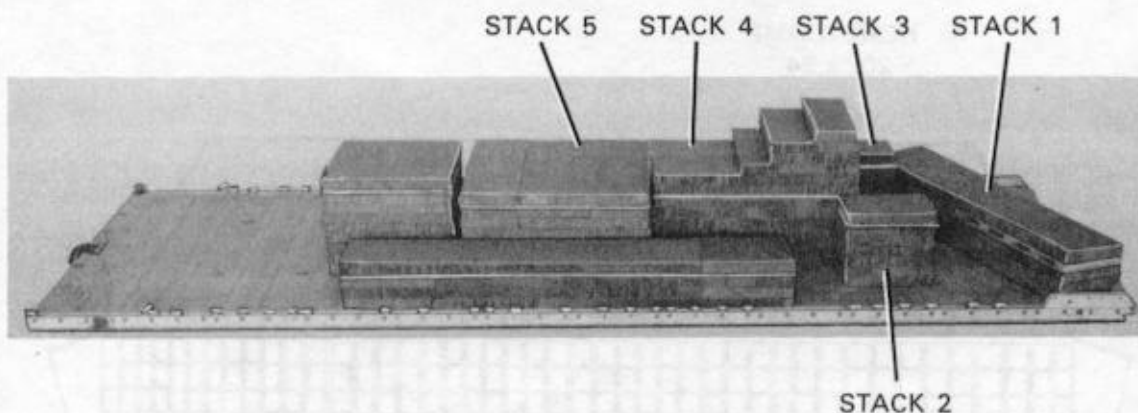
Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
7	4	20	96	Honeycomb	Place honeycomb as part of base. Alternate it with 20- by 24-inch honeycomb. Place honeycomb as part of base. Alternate it with 20- by 96-inch honeycomb. Place plywood side by side under top layer of base.
	4	20	24	Honeycomb	
	2	20	60	3/4-inch plywood	
8	4	20	96	Honeycomb	Same as stack 7.
	4	20	24	Honeycomb	
	2	20	60	3/4-inch plywood	

Figure 8-8. Stacks 7 and 8 prepared

c. Position the honeycomb stacks on the platform as shown in Figures 8-9 through 8-13.

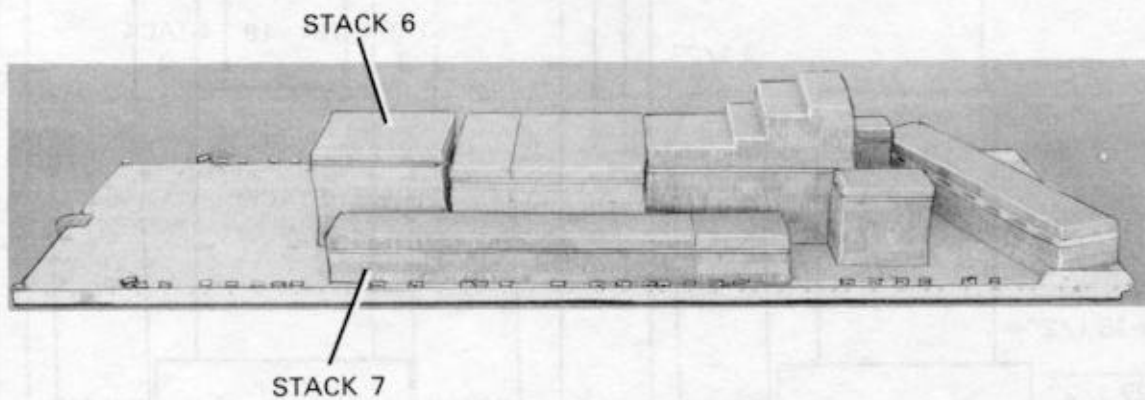
CAUTION

The honeycomb stacks **MUST** be positioned in the following order: stacks 4, 7, 5, 8, and 3. This should be done before the other stacks are positioned.



Stack Number	Position on Platform
1	Angle the stack on the platform with the right front corner of the stack even with the front edge of the platform and the right rear corner against the right side rail. The left front corner is 31 inches from the front of the platform. The left rear edge of the stack is against stack 3.
2	Place the front edge of the stack 46 inches from the front edge of the platform. The left rear side of the stack is against stack 4. The stack extends 18 inches in front of stack 4.
3	Place the stack on the left side of the platform 46 inches from the front edge of the platform, with 6 inches of the right rear edge of the stack against stack 4. The stack extends 18 inches in front of stack 4.
4	Place the stack on the platform with the front edge of the stack 64 inches from the front edge of the platform. The left front side of the stack is 38 inches from the left side rail, and the left rear of the stack is 36 1/2 inches from the left rail.
5	Place the stack on the platform with the front of the stack against stack 4. The left front corner of the stack is 27 1/2 inches from the left rail, and the left rear corner of the stack is 26 inches from the left rail. The right side of the stack is against stack 7.

Figure 8-9. Honeycomb stacks positioned on the platform



Stack Number	Position on Platform
6	Place the stack on the platform with the front edge of the stack 4 inches from stack 5. The left front corner is 35 inches from the left side rail, and the left rear corner of the stack is 34 inches from the left side rail.
7	Place the right front corner of the stack on the platform 85 inches from the front edge of the platform. The right front corner of the stack is 2 1/2 inches from the right rail, and the right rear corner is 4 1/2 inches from the right rail.
8	Place the left front corner of the stack on the platform 85 inches from the front edge of the platform. The left front corner of the stack is 7 1/2 inches from the left rail, and the left rear corner of the stack is 4 1/2 inches from the left rail (not shown).

Figure 8-9. Honeycomb stacks positioned on the platform (continued)

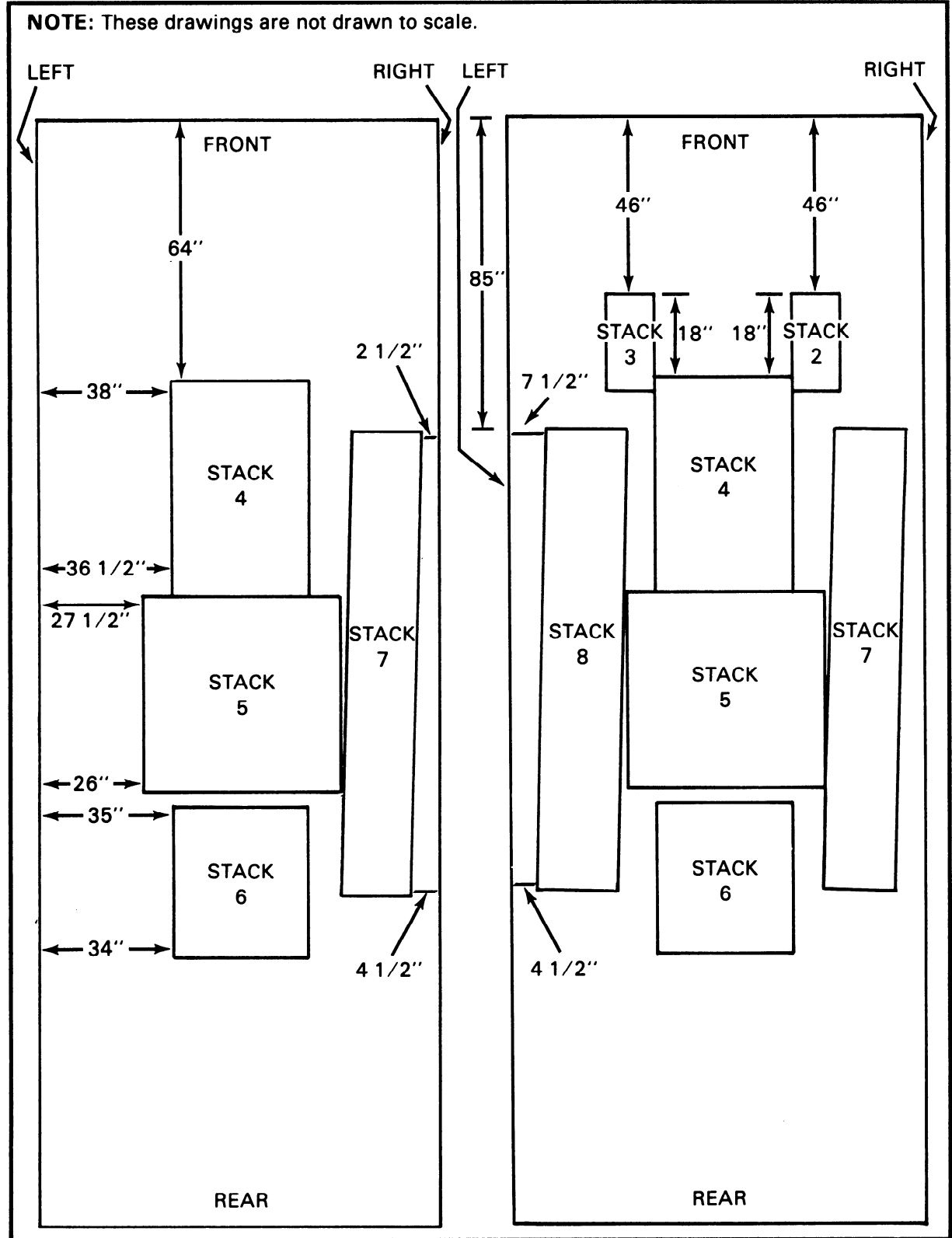


Figure 8-10. Line drawings of honeycomb stacks 2, 3, 4, 5, 6, 7, and 8 positioned on the platform

NOTE: This drawing is not drawn to scale.

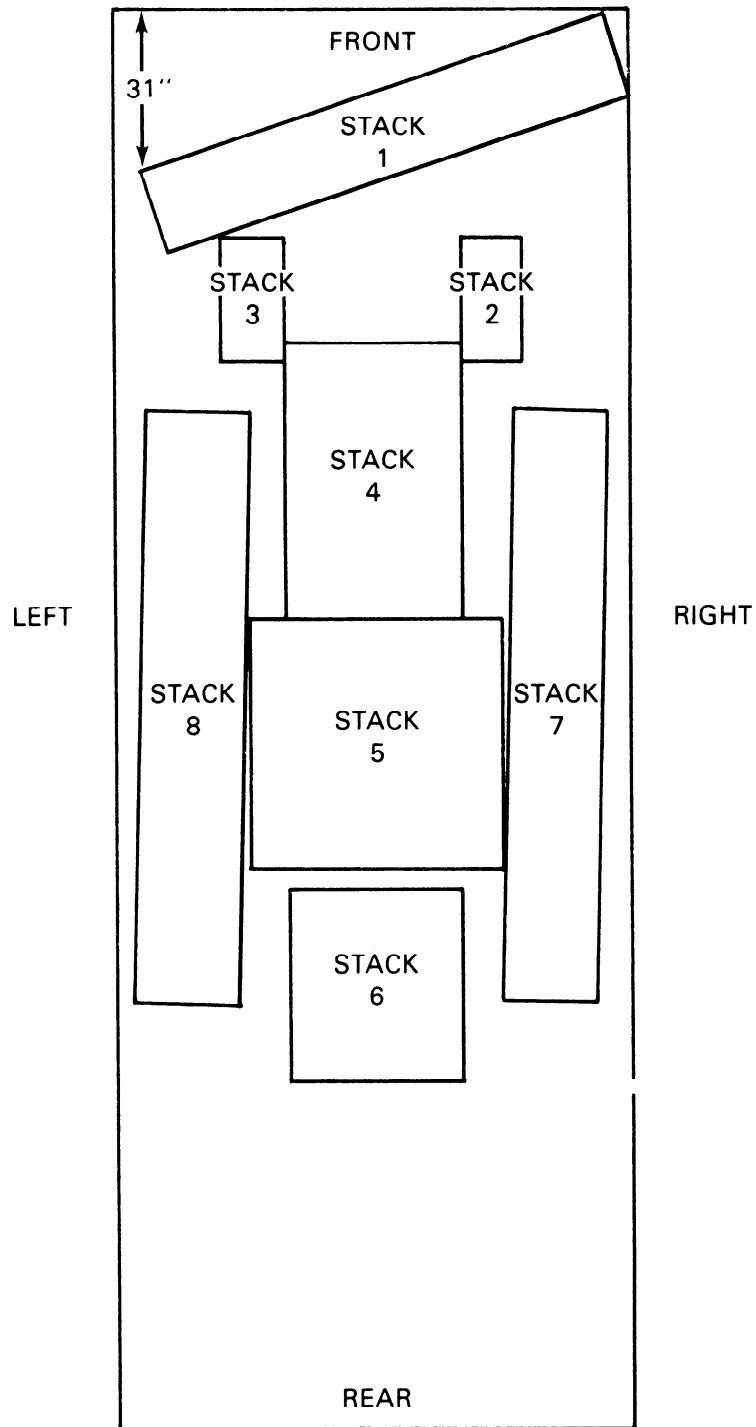


Figure 8-11. Line drawing of honeycomb stacks 1 through 8 positioned on the platform

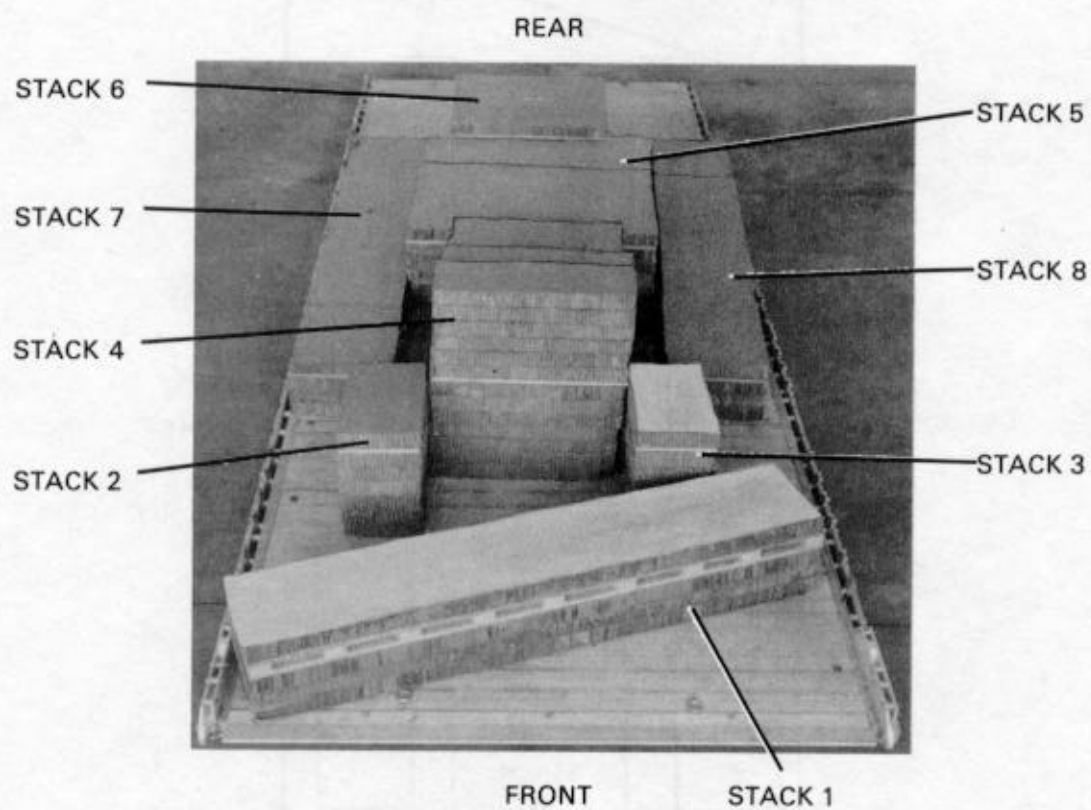


Figure 8-12. Front view of the honeycomb stacks positioned on the platform

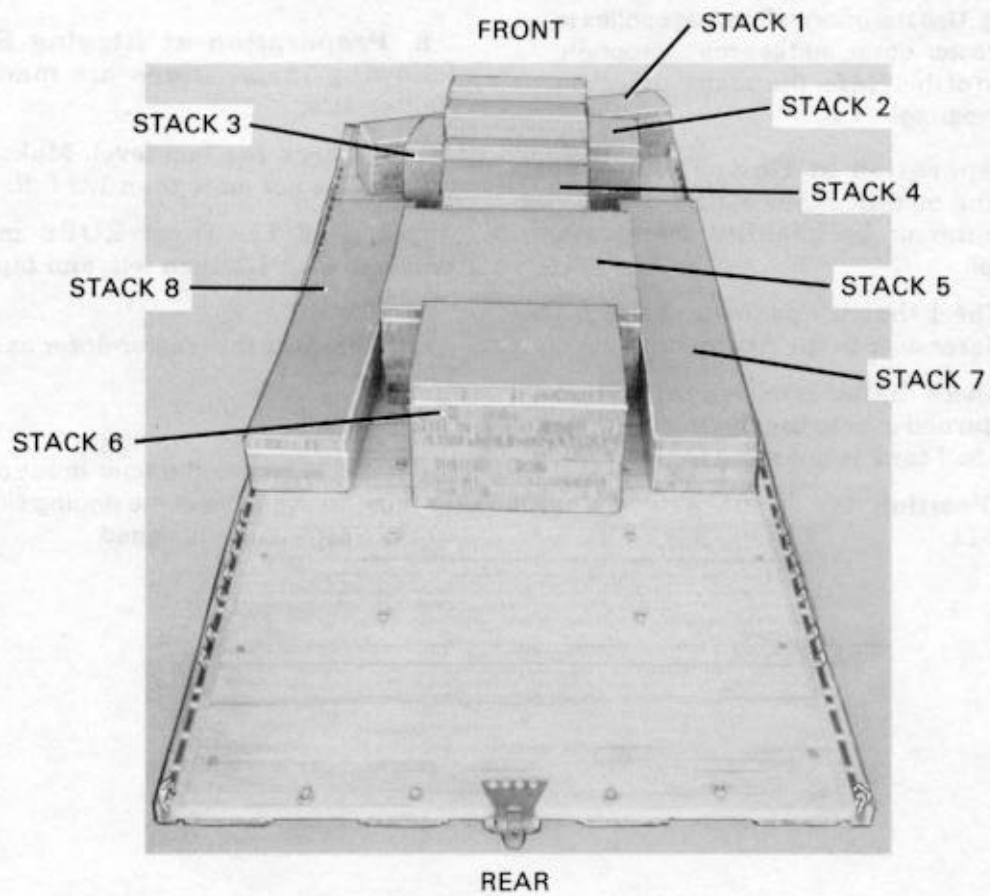


Figure 8-13. Rear view of the honeycomb stacks positioned on the platform

8-4. Preparing Dozer

Personnel of the owning unit and rigging unit personnel will prepare the tractor-dozers as described below.

NOTE: All of the preparations listed below may not apply to the tractor-dozers you are rigging. Use the information that applies to your tractor-dozers, and see the appropriate section of this FM for the tractor-dozers you are preparing.

a. Preparation at Unit. The following checks and modifications **MUST** be done by the operator or by qualified maintenance personnel.

(1) Check the batteries before turning the tractor-dozers over to the rigging unit.

(2) Check the fuel level before the tractor-dozers are turned over to the rigging unit. Make sure the fuel tank is not more than 1/2 full.

(3) Position the blade as shown in Figure 8-14.

(4) Remove the ROPS and the ROPS mounting brackets attached to the tractor-dozers. Remove the nose wheel and bracket and the pivot bracket before the tractor-dozers are delivered to the rigging site.

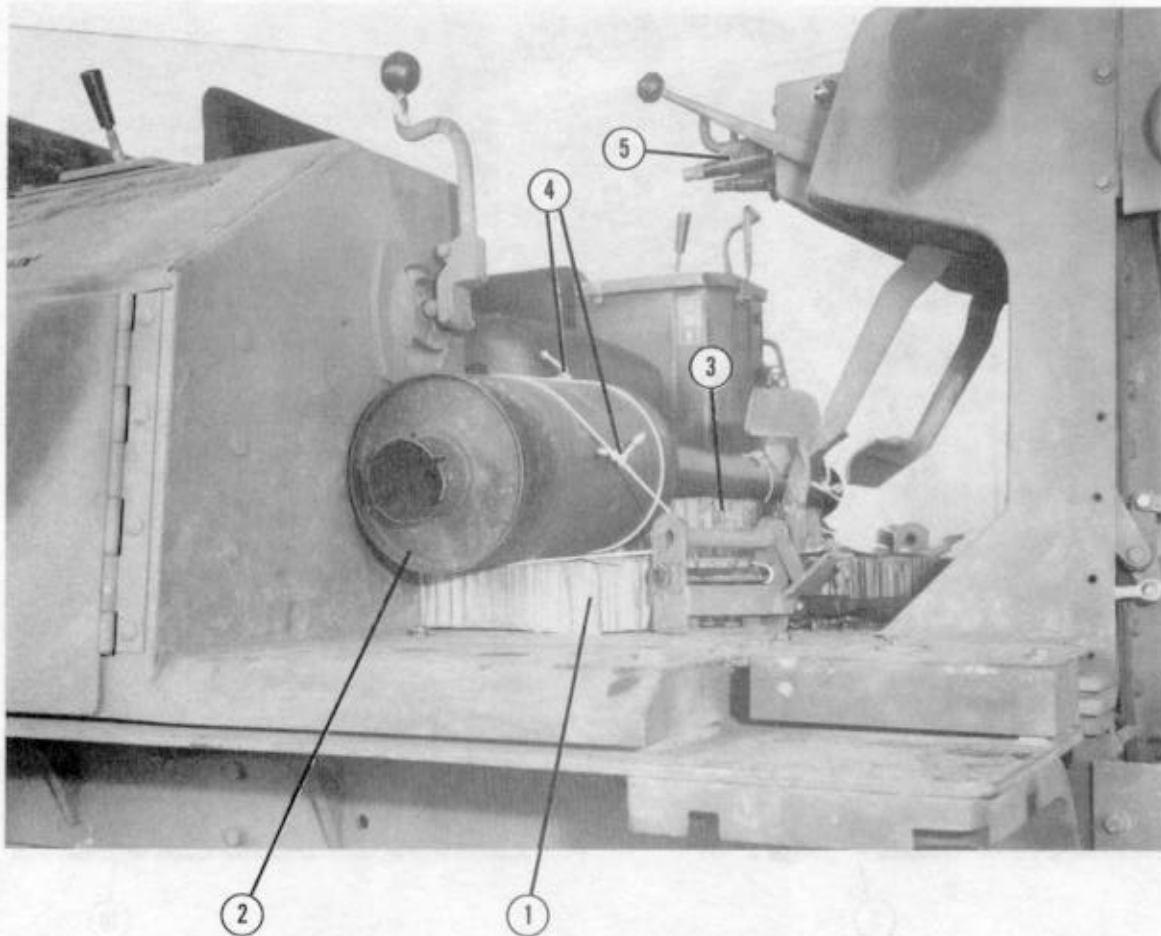
b. Preparation at Rigging Site. The following preparations are made at the rigging site.

(1) Check the fuel level. Make sure the fuel tank is not more than 1/2 full.

(2) Pad the front ROPS mounting brackets with 1/2-inch felt, and tape the felt in place.

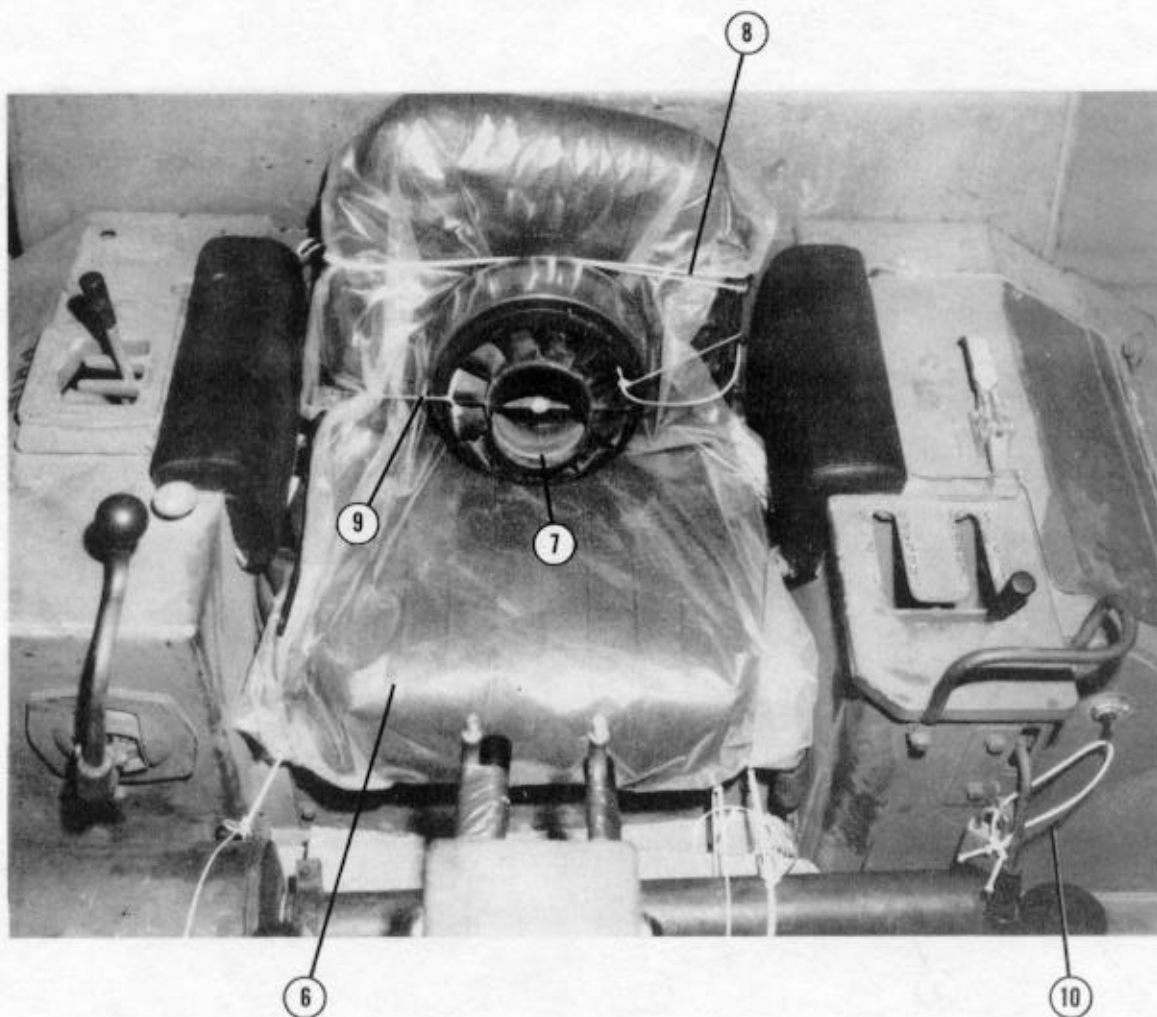
(3) Prepare the tractor-dozers as shown in Figure 8-14.

NOTE: A qualified tractor-dozers operator must be available at the rigging site when the tractor-dozers are rigged.



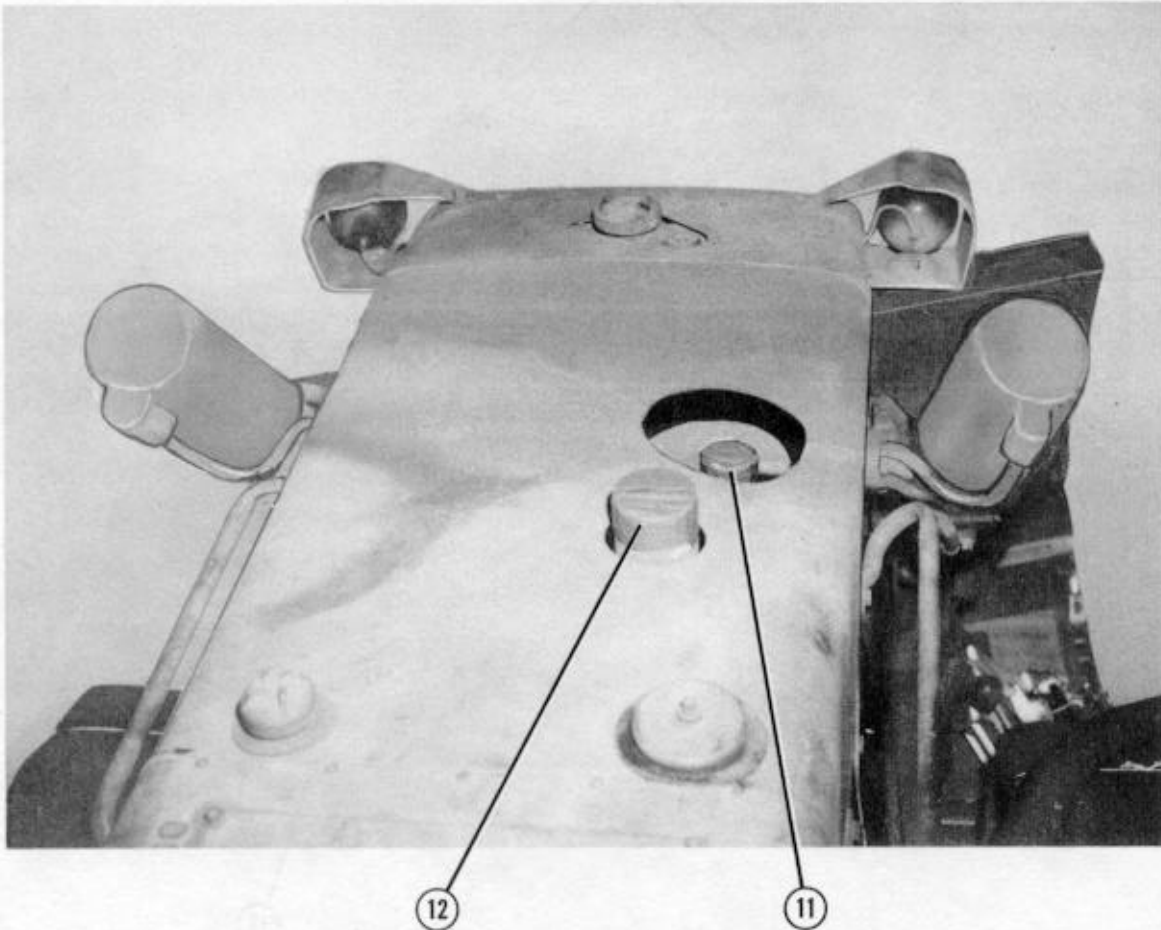
- ① Place a 16- by 36-inch piece of honeycomb on the floor of the operator platform.
- ② Remove the exhaust stack, and place it on top of the 16- by 36-inch piece of honeycomb.
- ③ Place an 8- by 16-inch piece of honeycomb under the exhaust pipe.
- ④ Tie the exhaust stack, exhaust pipe, and honeycomb to the floor of the operator platform with several turns of type III nylon cord.
- ⑤ Remove the control rod handles from the control rods. Tape the control rod handles to the control rods.

Figure 8-14. Tractor-dozer prepared



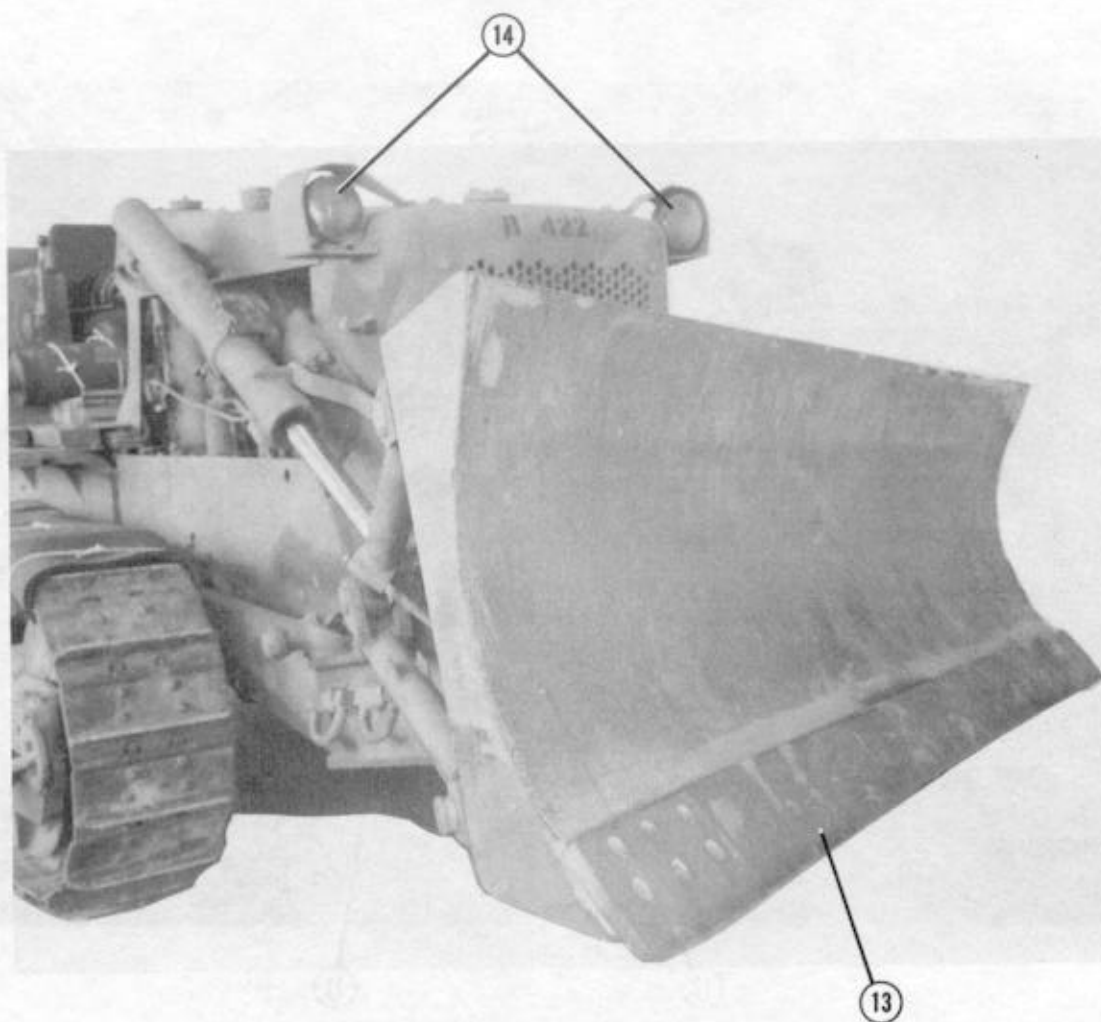
- ⑥ Cover the operator seat and the back of the seat with plastic.
- ⑦ Remove the air precleaner. Place the air precleaner in the operator seat.
- ⑧ Tie the back of the seat with 1/4-inch cotton webbing.
- ⑨ Tie the air precleaner in place to the back of the seat with type III nylon cord.
- ⑩ Tie the disconnect switch to the transmission control lever safety lock (with the lock in the locked position) using type III nylon cord.

Figure 8-14. Tractor-dozer prepared (continued)



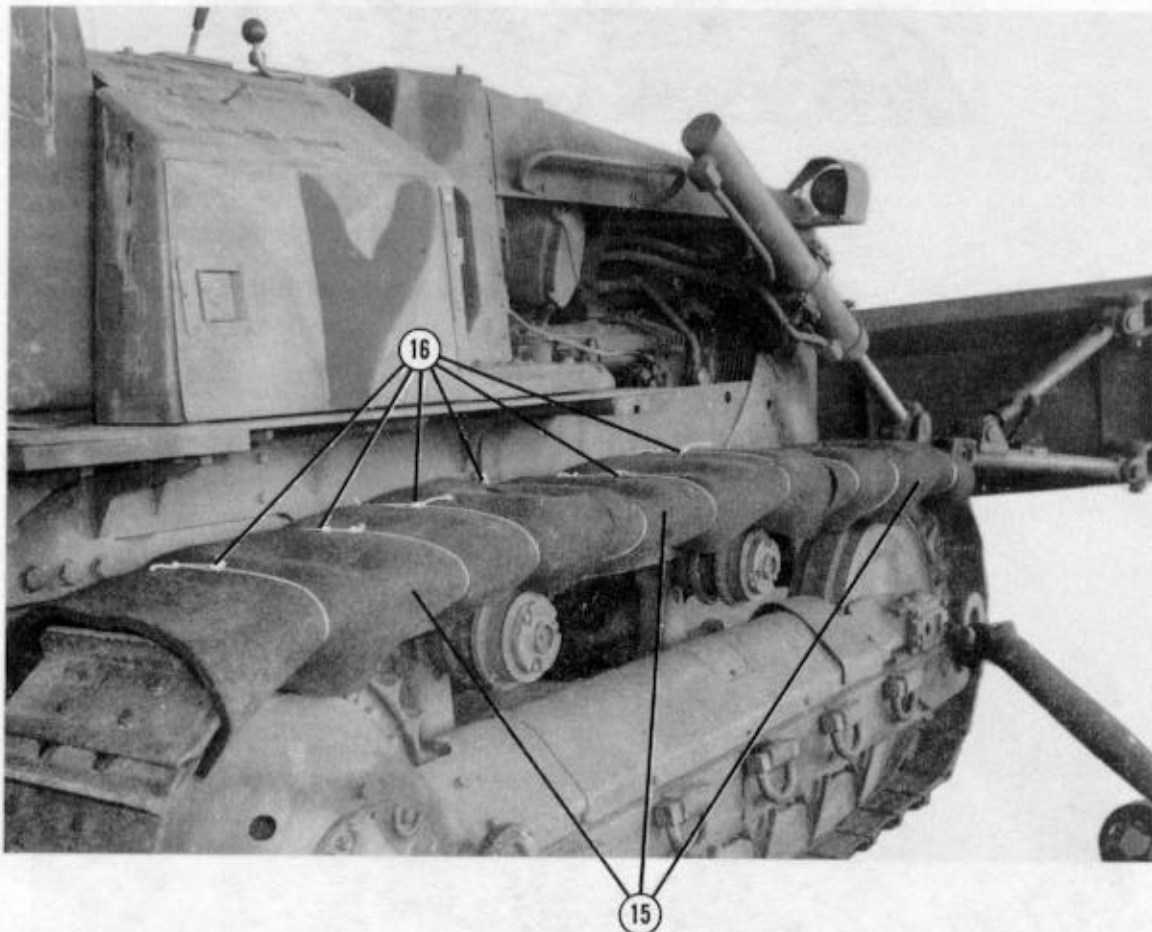
- ⑪ Cover the exhaust stack opening with tape.
- ⑫ Cover the air precleaner opening with tape.

Figure 8-14. Tractor-dozer prepared (continued)



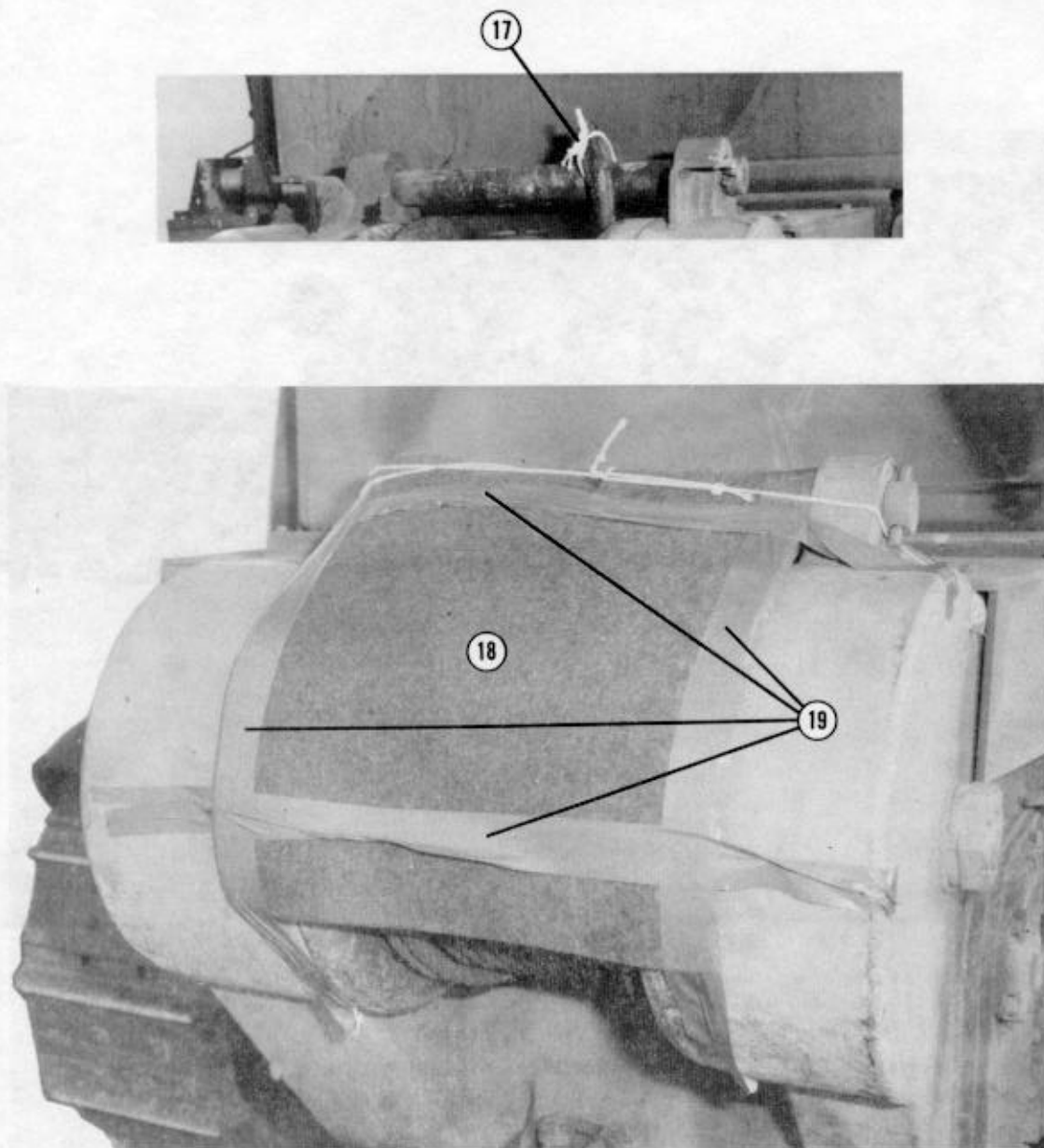
- ⑬ Raise the blade 20 inches from the ground. Angle the blade to the left as far as it will go.
- ⑭ Cover the headlights with tape.

Figure 8-14. Tractor-dozer prepared (continued)



- ⑮ Pad each track with three 1/2- by 24- by 36-inch pieces of felt.
- ⑯ Tie the felt in place with single turns of type III nylon cord.

Figure 8-14. Tractor-dozer prepared (continued)



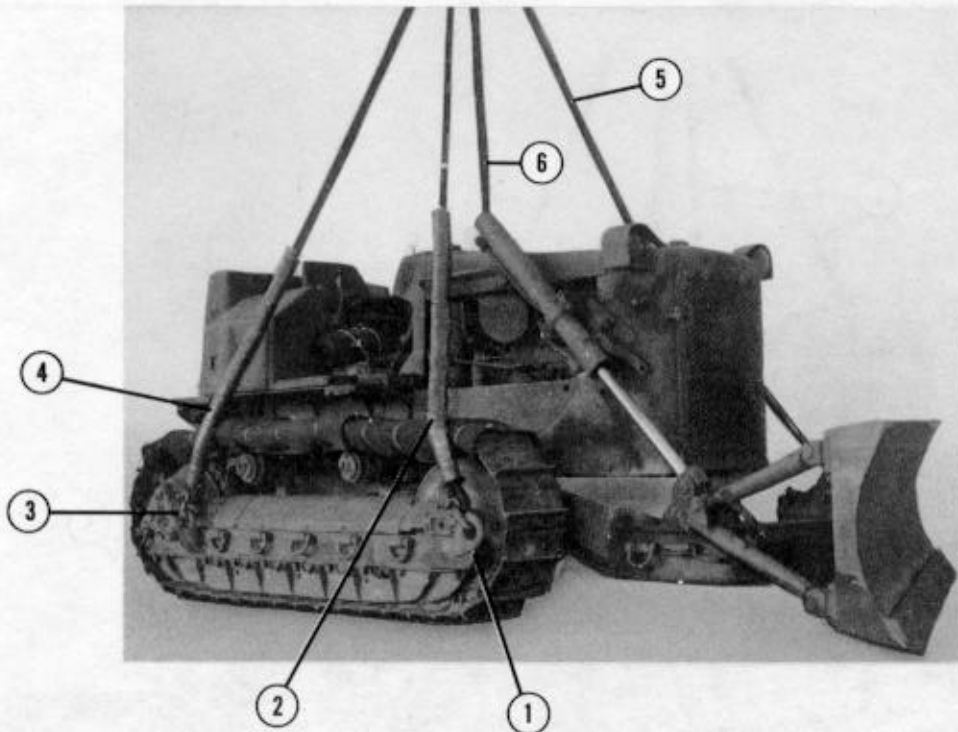
- ①⑦ Secure the end of the winch cable and hook under slight tension. Tie the hook in place with type III nylon cord.
- ①⑧ Cover the winch cable with a 1/2- by 20- by 31-inch piece of felt.
- ①⑨ Tape the felt in place with cloth-backed adhesive tape.

Figure 8-14. Tractor-dozzer prepared (continued)

8-5. Installing Suspension Slings

Install four 12-foot (4-loop), type XXVI nylon webbing slings for suspension slings as outlined in Figure 8-15.

NOTE: Attach a large screw-pin clevis to each lifting point for suspension purposes.



- ① Install a sling on the right front lifting point with a large screw-pin clevis and spacer.
- ② Pad the sling with a 1/2- by 12- by 36-inch piece of felt. Adjust the felt on the sling as necessary to make sure the sling does not touch the track.
- ③ Install a sling on the right rear lifting point with a large screw-pin clevis and spacer.
- ④ Pad the sling with a 1/2- by 12- by 36-inch piece of felt. Adjust the felt on the sling as necessary to make sure the sling does not touch the track.
- ⑤ Install a sling on the left front lifting point adapting the procedures described in 1 and 2 above.
- ⑥ Install a sling on the left rear lifting point adapting the procedures described in 3 and 4 above.

Figure 8-15. Suspension slings installed

8-6. Lifting and Positioning Dozer

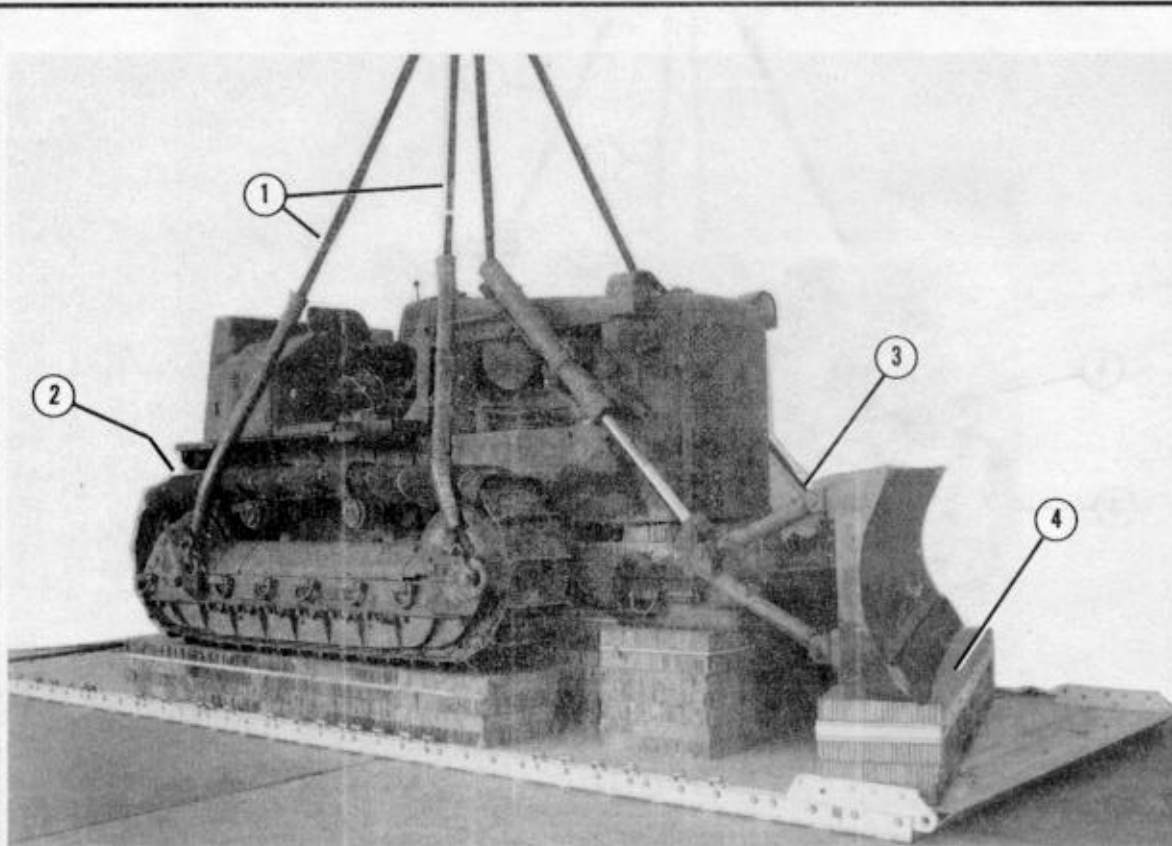
Lift the dozer, and position it on the honeycomb stacks as described below.

a. Use the suspension slings as lifting slings, or attach other slings of equal or greater strength to lift the dozer. If other slings are used, use paragraph 8-5 as a guide to install the lifting slings.

b. Attach the lifting slings to the lifting device.

c. Make sure the lifting slings are padded well enough so that they will not be damaged.

d. Lift the dozer, and position it on the honeycomb stacks as shown in Figure 8-16.



NOTES: 1. If the suspension slings are not used to lift the dozer, remove them.
2. The dozer is set at an angle.

- ① Lift the dozer with the lifting slings.
- ② Center the rear of the dozer down first on stack 6 with the face of the drawbar assembly even with the rear edge of the honeycomb stack.
- ③ Make sure the front pull hook is centered on stack 4.
- ④ Position the blade of the dozer so that it is centered between the rails and about 3 inches from the right front edge of the platform on stack 1.

Figure 8-16. Dozer positioned

8-7. Lashing Dozer

Lash the dozer to the platform with fifty-two 15-foot tiedown assemblies according to FM 10-500/TO 13C7-1-5 and as shown in Figures 8-17 through 8-21.

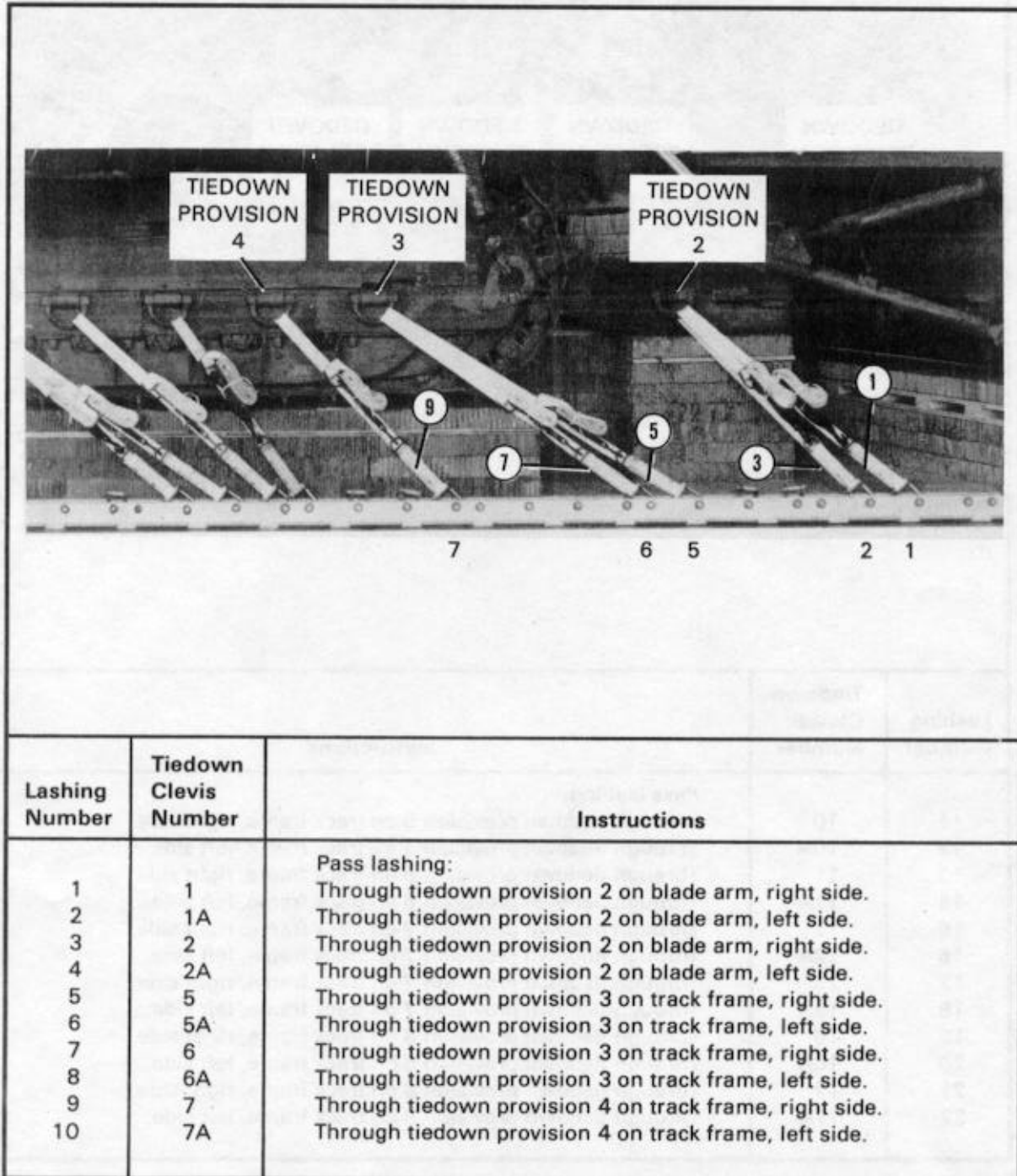
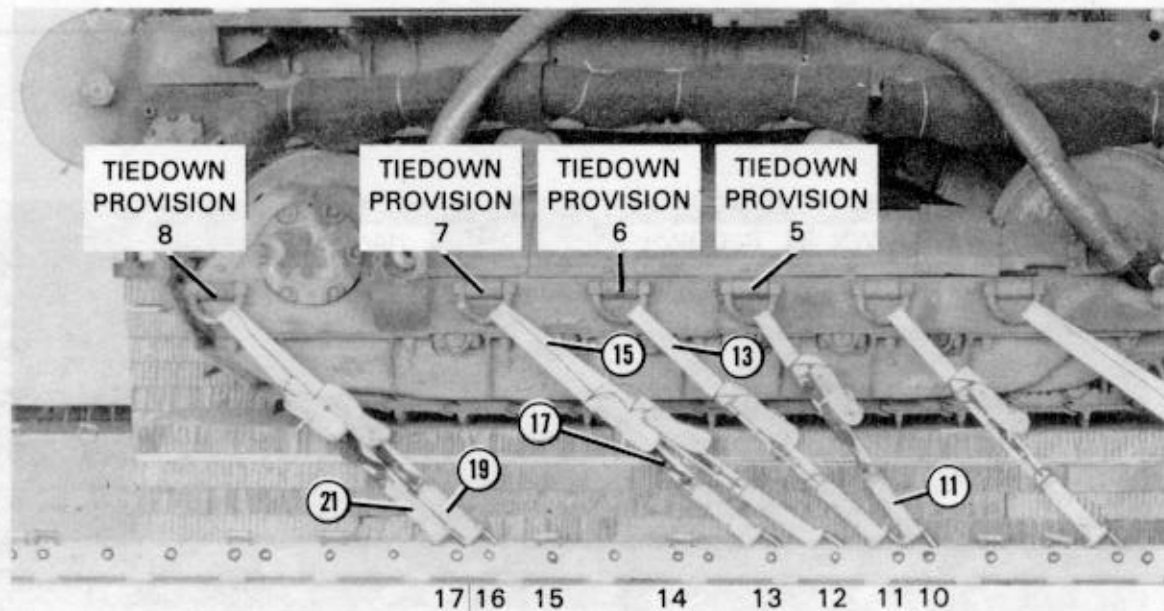
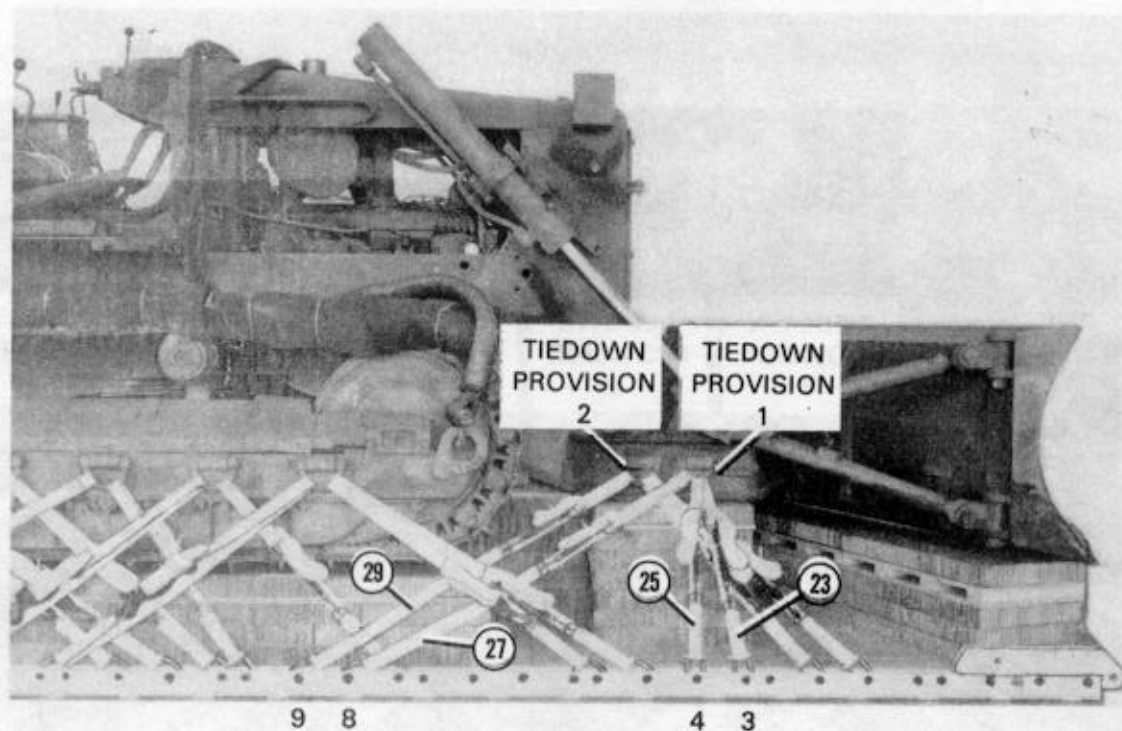


Figure 8-17. Lashings 1 through 10 installed



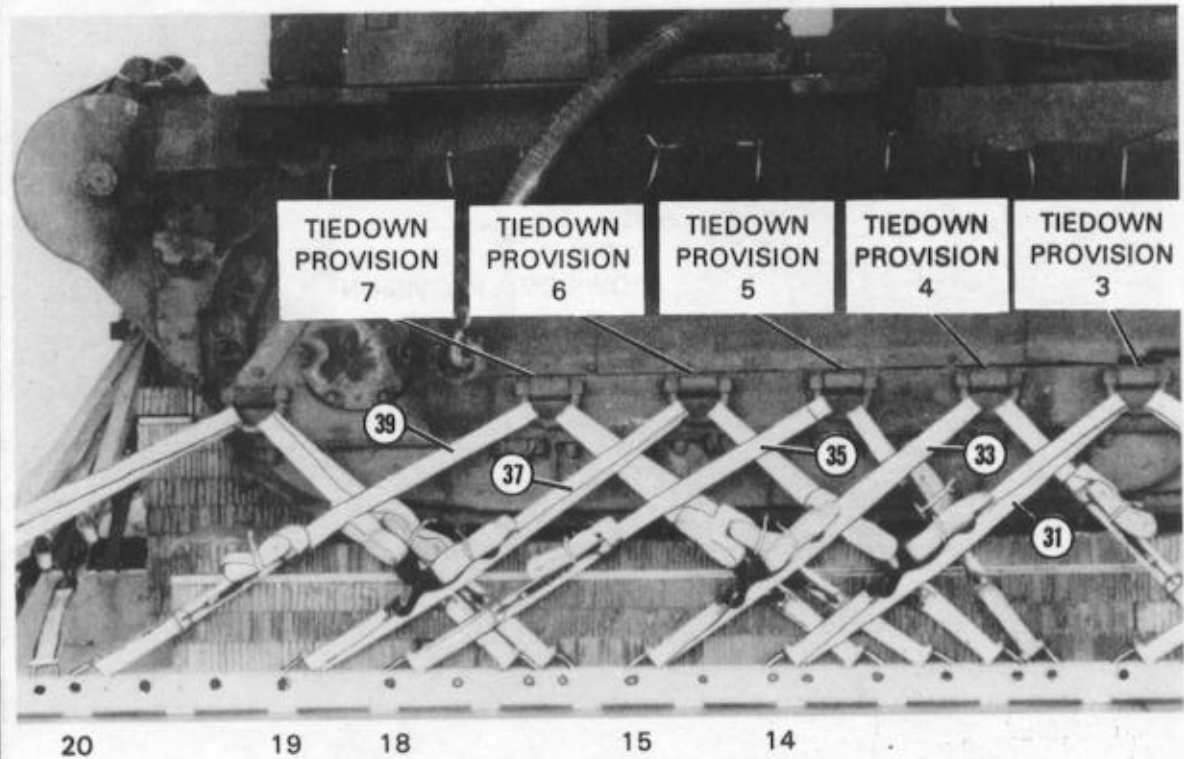
Lashing Number	Tiedown Clevis Number	Instructions
11	10	Pass lashing:
12	10A	Through tiedown provision 5 on track frame, right side.
13	11	Through tiedown provision 5 on track frame, left side.
14	11A	Through tiedown provision 6 on track frame, right side.
15	12	Through tiedown provision 6 on track frame, left side.
16	12A	Through tiedown provision 7 on track frame, right side.
17	13	Through tiedown provision 7 on track frame, left side.
18	13A	Through tiedown provision 7 on track frame, right side.
19	16	Through tiedown provision 7 on track frame, left side.
20	16A	Through tiedown provision 8 on track frame, right side.
21	17	Through tiedown provision 8 on track frame, left side.
22	17A	Through tiedown provision 8 on track frame, right side.

Figure 8-18. Lashings 11 through 22 installed



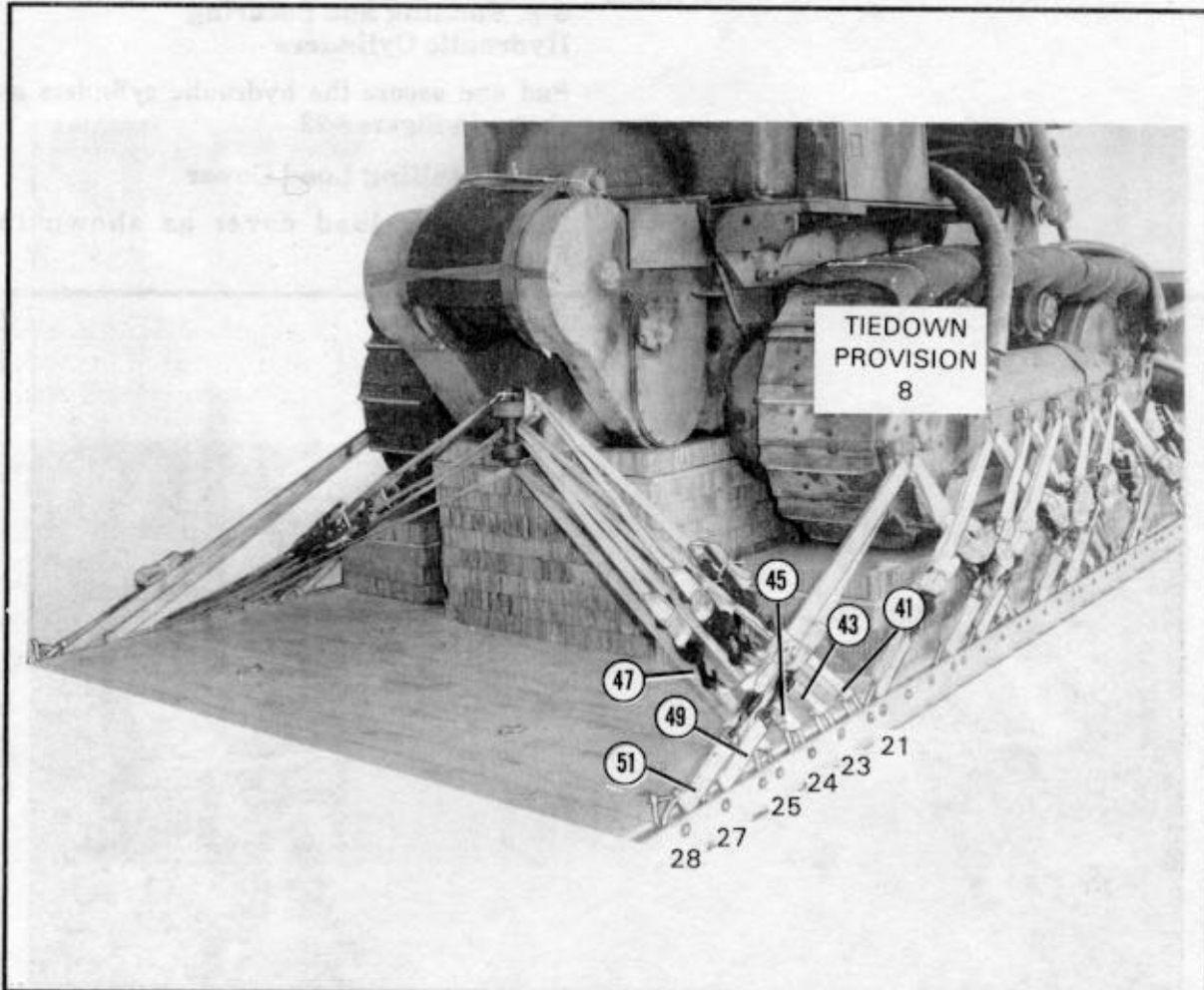
Lashing Number	Tiedown Clevis Number	Instructions
23	3	Pass lashing:
24	3A	Through tiedown provision 1 on blade arm, right side.
25	4	Through tiedown provision 1 on blade arm, left side.
26	4A	Through tiedown provision 1 on blade arm, right side.
27	8	Through tiedown provision 1 on blade arm, left side.
28	8A	Through tiedown provision 1 on blade arm, right side.
29	9	Through tiedown provision 1 on blade arm, left side.
30	9A	Through tiedown provision 2 on blade arm, right side.
		Through tiedown provision 2 on blade arm, left side.

Figure 8-19. Lashings 23 through 30 installed



Lashing Number	Tiedown Clevis Number	Instructions
31	14	Pass lashing:
32	14A	Through tiedown provision 3 on track frame, right side.
33	15	Through tiedown provision 3 on track frame, left side.
34	15A	Through tiedown provision 4 on track frame, right side.
35	18	Through tiedown provision 4 on track frame, left side.
36	18A	Through tiedown provision 5 on track frame, right side.
37	19	Through tiedown provision 5 on track frame, left side.
38	19A	Through tiedown provision 6 on track frame, right side.
39	20	Through tiedown provision 6 on track frame, left side.
40	20A	Through tiedown provision 7 on track frame, right side.
		Through tiedown provision 7 on track frame, left side.

Figure 8-20. Lashings 31 through 40 installed



Lashing Number	Tiedown Clevis Number	Instructions
41	21	Pass lashing:
42	21A	Around top lug of drawbar bracket.
43	23	Around top lug of drawbar bracket.
44	23A	Around bottom lug of drawbar bracket.
45	24	Around top lug of drawbar bracket.
46	24A	Around top lug of drawbar bracket.
47	25	Around bottom lug of drawbar bracket.
48	25A	Around bottom lug of drawbar bracket.
49	27	Through tiedown provision 8 on track frame, right side.
50	27A	Through tiedown provision 8 on track frame, left side.
51	28	Through tiedown provision 8 on track frame, right side.
52	28A	Through tiedown provision 8 on track frame, left side.

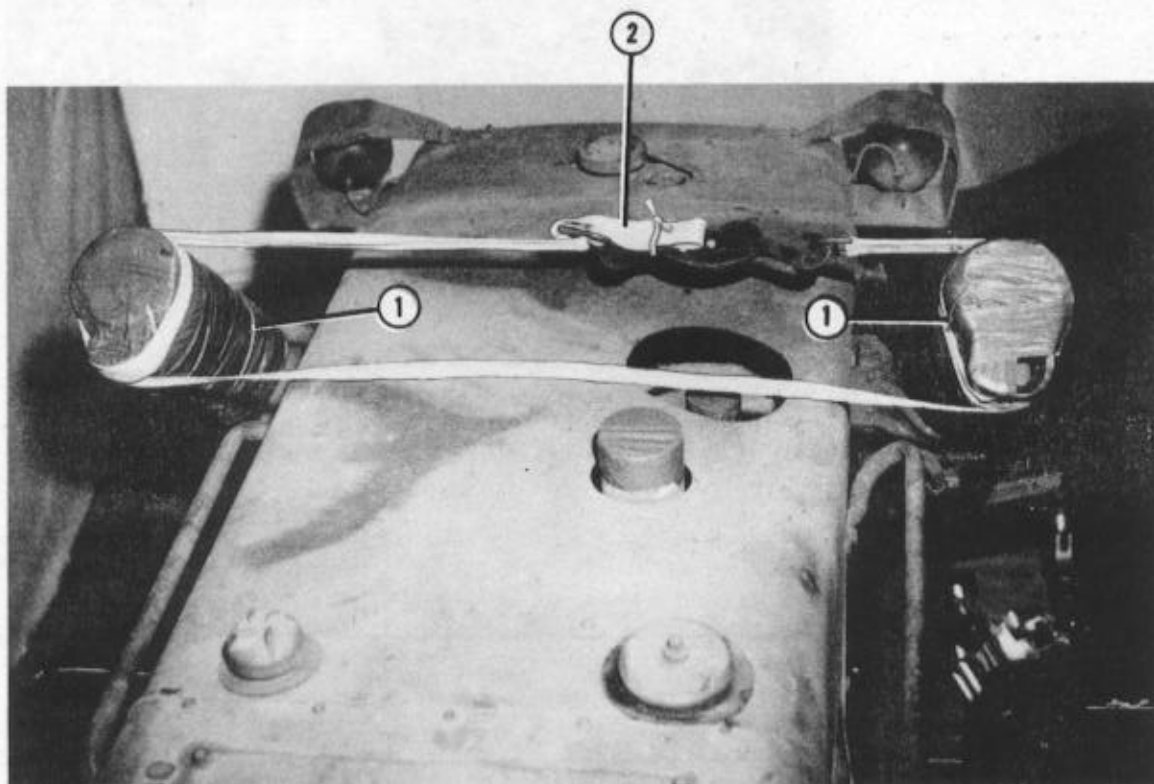
Figure 8-21. Lashings 41 through 52 installed

8-8. Padding and Securing Hydraulic Cylinders

Pad and secure the hydraulic cylinders as shown in Figure 8-22.

8-9. Installing Load Cover

Install the load cover as shown in Figure 8-23.



- ① Pad the top part of each hydraulic cylinder with a 1/2- by 18- by 24-inch piece of felt, and tape the felt in place. Tie the taped felt to each hydraulic cylinder with type III nylon cord.
- ② Pass one end of a 15-foot tiedown strap around one hydraulic cylinder and then around the other cylinder. Secure the ends of the strap together according to FM 10-500/TO 13C7-1-5.

Figure 8-22. Hydraulic cylinders padded and secured

8-10. Installing Deadman's Tie

NOTICE OF EXCEPTION: The procedures in this paragraph are different from those in FM 10-500/TO 13C7-1-5. The deadman's tie is installed even with the top of the load. An exception to FM 10-500/TO 13C7-1-5 is granted.

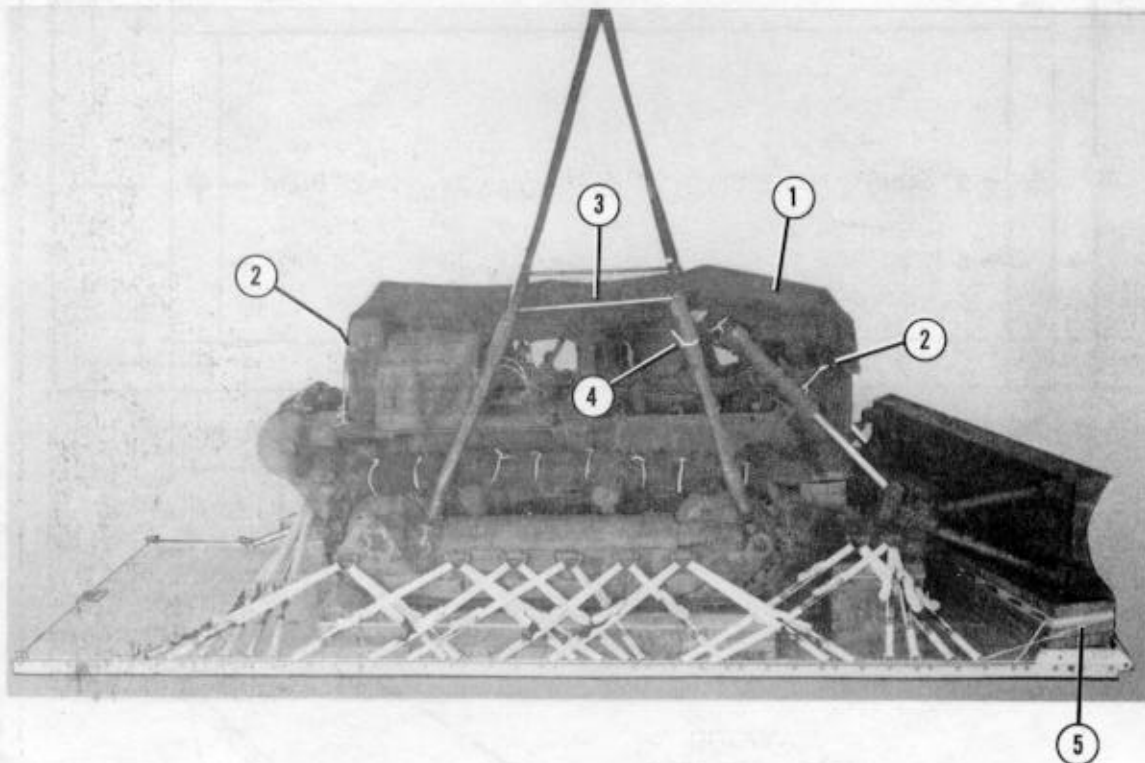
Install the deadman's tie as shown in Figure 8-23.

8-11. Safetying Suspension Slings

Install a safety tie on the suspension slings as shown in Figure 8-23.

8-12. Safetying Load Spreader

Install a safety tie on the load spreader in honeycomb stack 1 as shown in Figure 8-23.



- ① Place a 60- by 168-inch piece of cotton duck cloth over the load.
- ② Tie the load cover in place with several lengths of type III nylon cord.
- ③ Adapt the procedures in FM 10-500/TO 13C7-1-5, and install a deadman's tie on the suspension slings even with the top of the load.
- ④ Safety the suspension slings to the dozer with type III nylon cord.
- ⑤ Safety the load spreader in honeycomb stack 1 to the right platform side rail with type III nylon cord.

Figure 8-23. Load cover, deadman's tie, and safety ties installed

8-13. Stowing Cargo Parachutes

Build a parachute stowage platform, and stow the cargo parachutes as described below.

a. Building Stowage Platform. Build the stowage platform using the dimensions in Figure 8-24.

- NOTES:**
1. These drawings are not drawn to scale.
 2. Platform constructed using one piece of 3/4- by 48- by 96-inch plywood, two pieces of 2- by 6- by 37-inch lumber, and two pieces of 2- by 6- by 96-inch lumber.
 3. Use eightpenny nails to nail the plywood to the lumber.

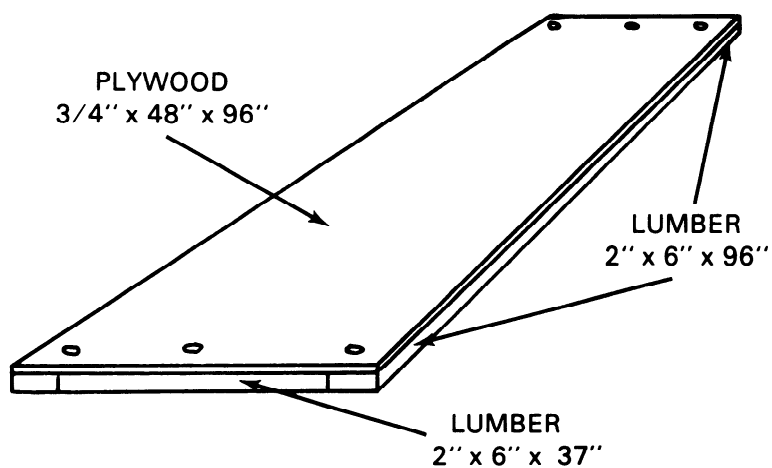
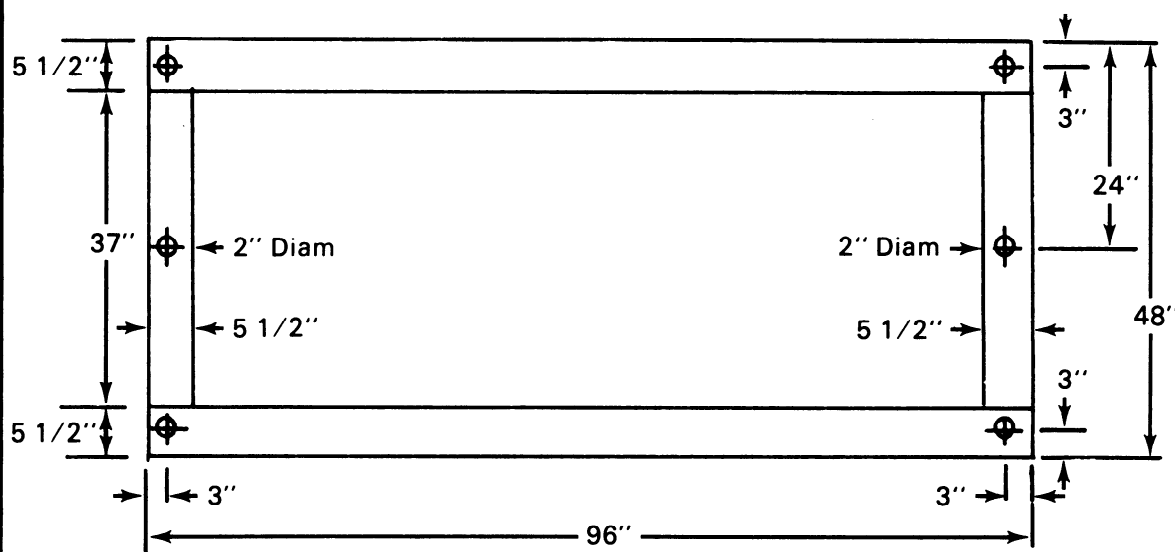
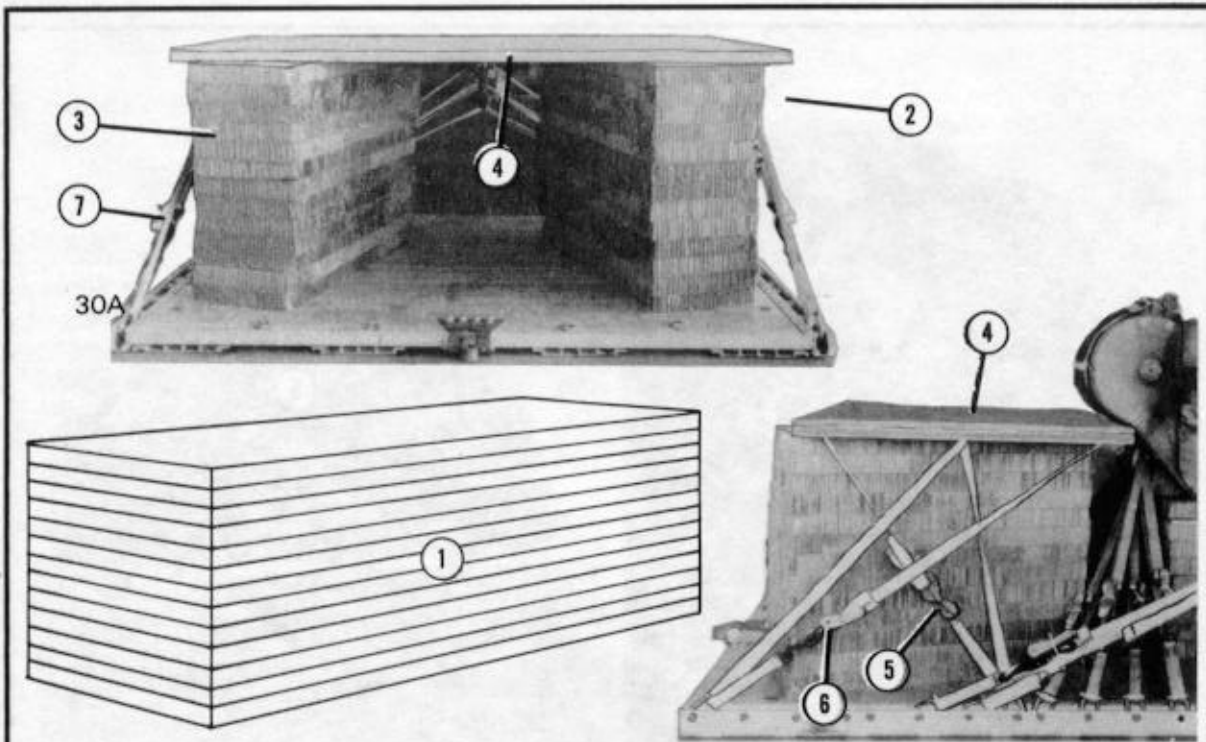


Figure 8-24. Construction details for parachute stowage platform

b. Securing Stowage Platform. Position and secure the stowage platform as shown in Figure 8-25.



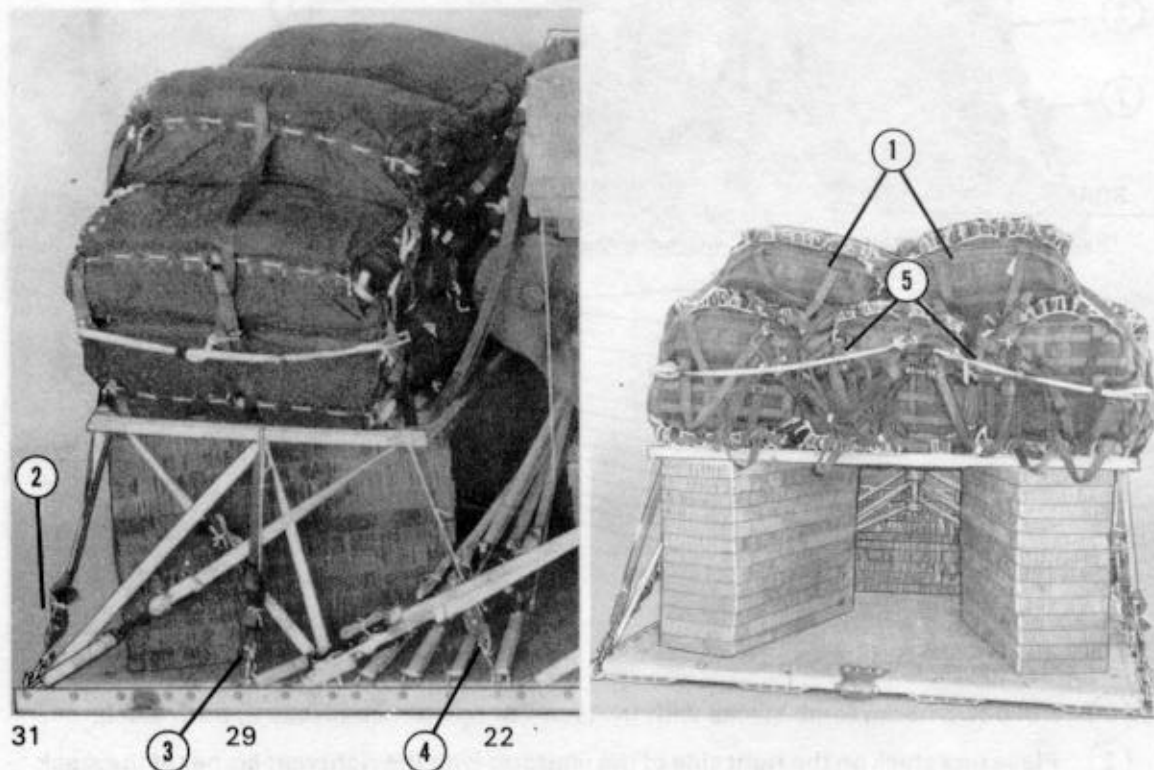
- ① Build two honeycomb stacks with thirteen 18- by 48-inch pieces in each stack.
- ② Place one stack on the right side of the platform with the right rear corner of the stack 8 inches from the right rail and the right front corner 22 inches from the right rail. The left rear corner is 8 inches from the rear of the platform.
- ③ Place one stack on the left side of the platform with the left rear corner of the stack 8 inches from the left rail and the left front corner 22 inches from the left rail. The right rear corner is 8 inches from the rear of the platform.
- ④ Center the stowage platform on the honeycomb stacks.
- ⑤ Run a 15-foot tiedown strap through clevis 26, up through the center hole in the right side of the stowage platform, and down through the rear hole. Hook the ends of the strap together with a D-ring and a load binder.
- ⑥ Run a 15-foot tiedown strap through clevis 30, up through the center hole in the right side of the stowage platform, and down through the front hole. Hook the ends of the strap together with a D-ring and a load binder.
- ⑦ Lash the other side of the stowage platform in the same way using clevises 26A and 30A.

Figure 8-25. Parachute stowage platform positioned and secured

c. Stowing Parachutes. Stow the parachutes as shown in Figure 8-26.

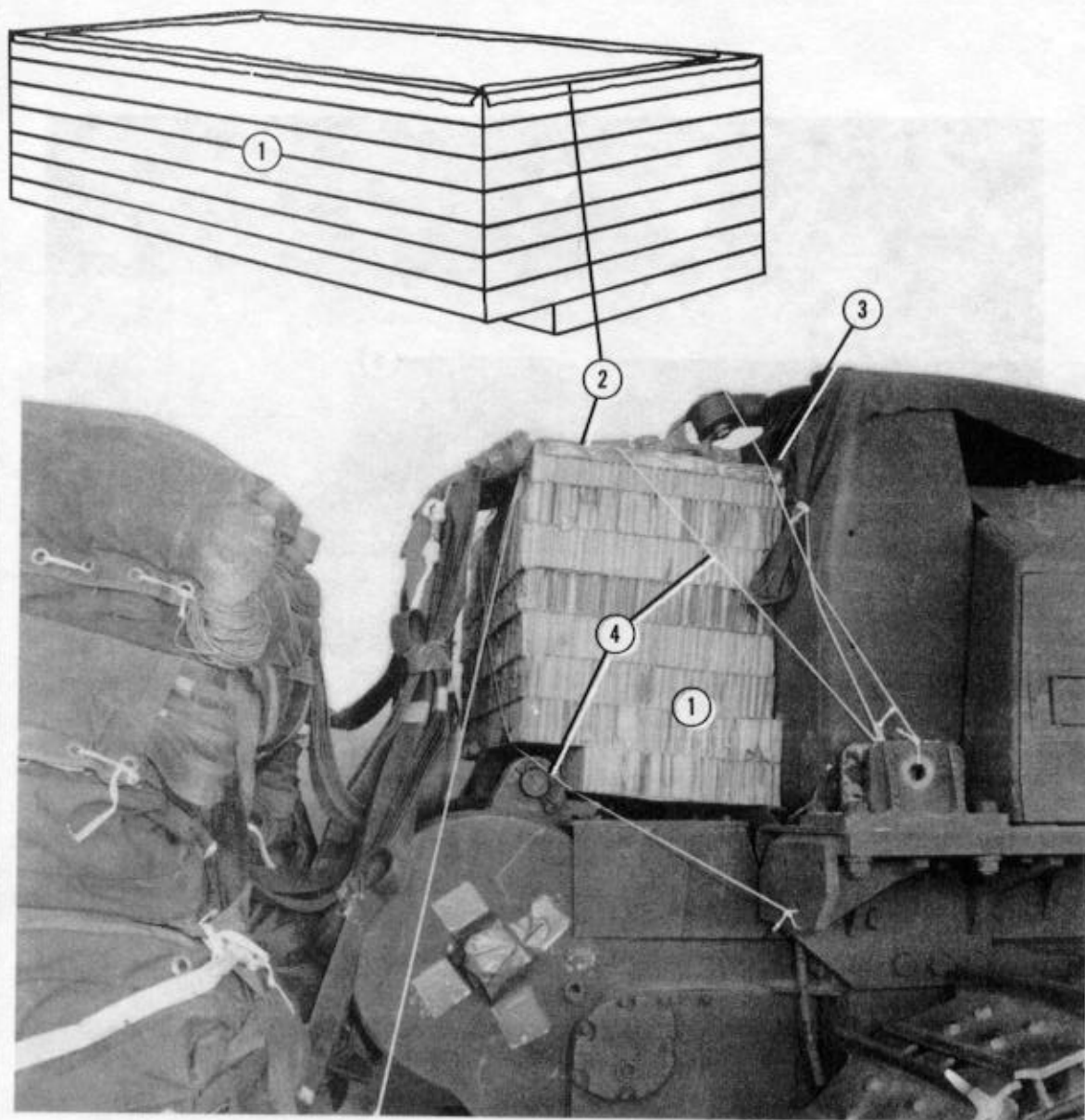
8-14. Installing the Release System

Prepare the M-2 cargo parachute release assembly according to FM 10-500/TO 13C7-1-5. Install the release assembly as shown in Figure 8-27.



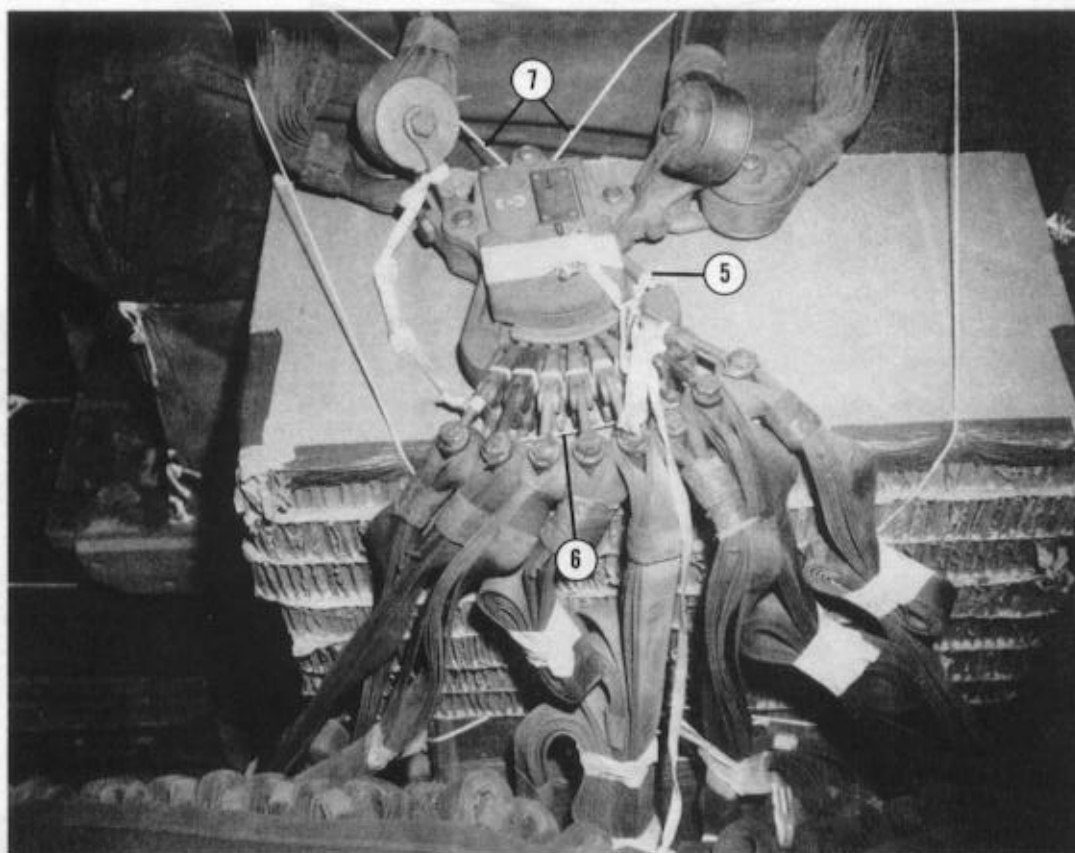
- ① Prepare, position, and stow eight G-11C cargo parachutes according to FM 10-500/TO 13C7-1-5.
- ② Install the first cargo parachute restraint strap according to FM 10-500/TO 13C7-1-5. Use tiedown clevises 31 and 31A for the first restraint strap.
- ③ Install the second restraint strap according to FM 10-500/TO 13C7-1-5 using tiedown clevises 29 and 29A.
- ④ Install the third restraint strap according to FM 10-500/TO 13C7-1-5 using tiedown clevises 22 and 22A.
- ⑤ Install a multicut parachute release strap on the restraint straps on each side according to FM 10-500/TO 13C7-1-5.

Figure 8-26. Parachutes stowed



- ① Build an eight-layer honeycomb stack with a bottom layer of 14- by 36-inch honeycomb and the next seven layers of 18- by 36-inch honeycomb. Glue the layers of honeycomb together.
- ② Tape the edges of the honeycomb where type III nylon cord will touch.
- ③ Place the honeycomb stack on the rear of the dozer, centered on top of the winch and against the fuel tank.
- ④ Tie the honeycomb stack in place with two lengths of type III nylon cord.

Figure 8-27. M-2 cargo parachute release assembly installed

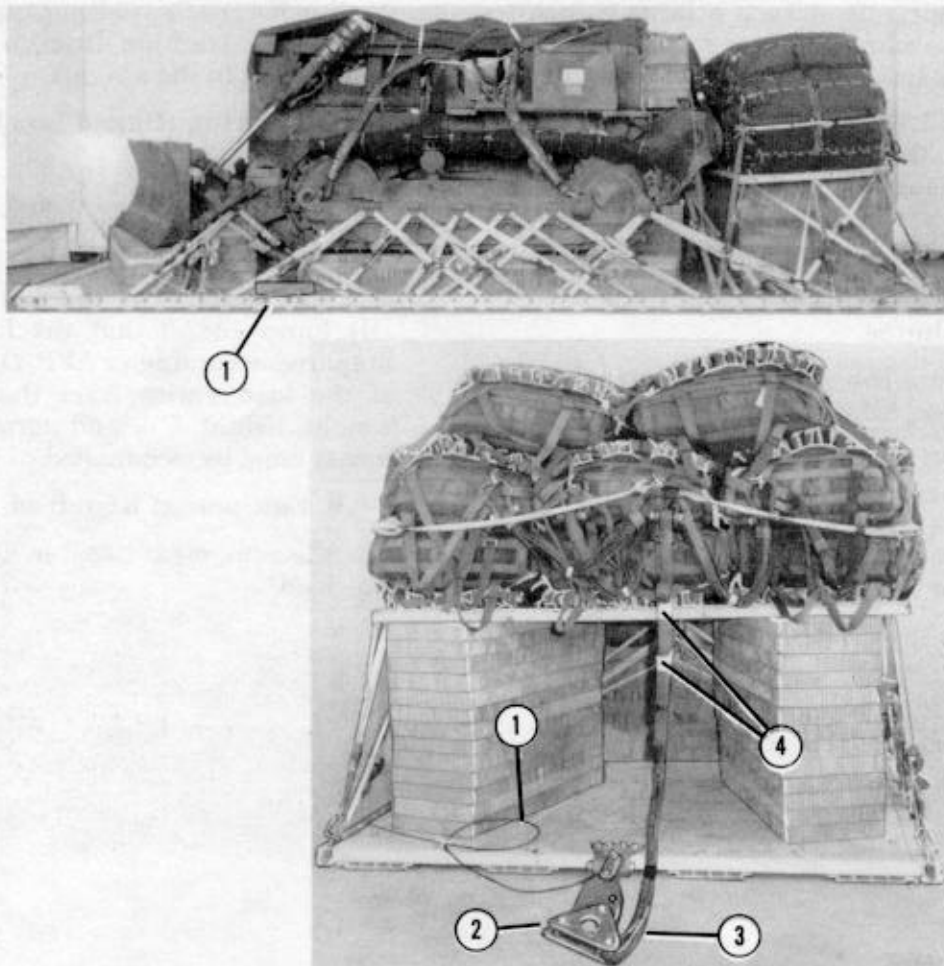


- ⑤ Place the M-2 cargo parachute release assembly on top of the honeycomb stack and install it according to FM 10-500/TO 13C7-1-5.
- ⑥ Safety the top of the release assembly according to FM 10-500/TO 13C7-1-5.
- ⑦ Safety the bottom of the release assembly according to FM 10-500/TO 13C7-1-5.

Figure 8-27. M-2 cargo parachute release assembly installed (continued)

8-15. Installing Extraction System

Install the EFTC extraction system as shown in Figure 8-28.



- ① Attach the type V EFTA mounting brackets to the rear mounting holes in the left platform rail. Install an actuator with a 20-foot cable to the EFTA mounting brackets according to FM 10-500/TO 13C7-1-5.
- ② Use a 5-inch latch assembly adapter and attach the latch assembly to the extraction bracket according to FM 10-500/TO 13C7-1-5. Make sure the locking nut hole faces toward the left side of the platform.
- ③ Connect one end of a 9-foot (4-loop), type XXVI nylon webbing sling (deployment line) to the right spacer of the link assembly. Connect the free end to the center large suspension clevis on the three 3-foot (4-loop), type XXVI nylon webbing slings.
- ④ Fold the excess deployment line, and secure the folds in place with tape or 80-pound cotton webbing.

Figure 8-28. Extraction system installed

8-16. Installing Emergency Restraint Points

Install emergency restraint points on the load when it is to be dropped from C-130 or C-141 aircraft. Attach a large (1-inch) suspension clevis to the front hole of each tandem link on the front of the platform.

NOTE: The emergency restraints will be installed to the points in the aircraft. The clevises used as emergency restraint points may be placed on the load and installed in the aircraft.

8-17. Positioning Extraction Parachutes

Position the extraction parachutes as described below.

a. C-130 Aircraft. Place two heavy-duty 28-foot cargo extraction parachutes; a 60-foot (6-loop), type XXVI nylon webbing extraction line; and a four-point link assembly on the load for installation in the aircraft.

b. C-141 Aircraft. Place two heavy-duty 28-foot cargo extraction parachutes and a continuous 120-foot (6-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

8-18. Marking Rigged Load

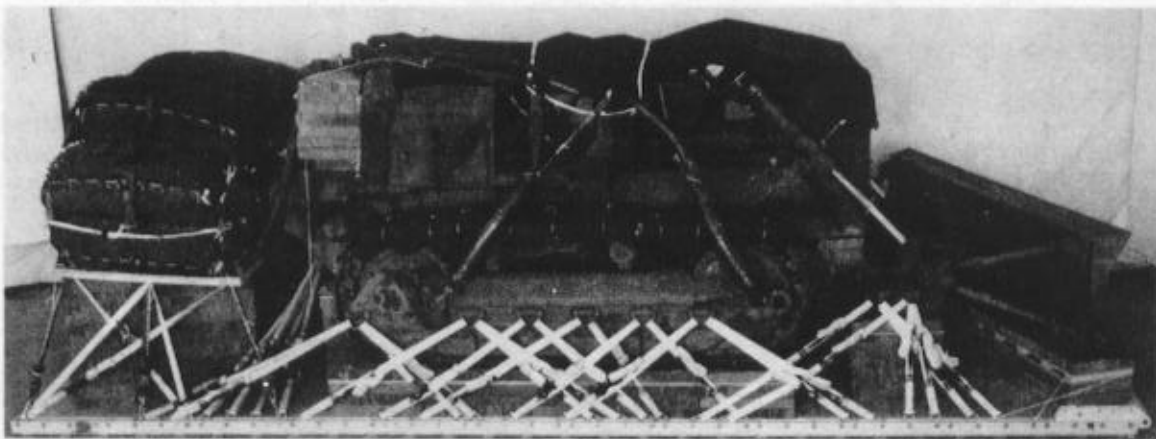
Mark the rigged load according to FM 10-500/TO 13C7-1-5 and as shown in Figure 8-29. Complete DD Form 1387-2 (Special Handling Data/Certification), and securely attach it to the load. Indicate on DD Form 1387-2 that the load has been prepared according to AFR 71-4/TM 38-250. If the load varies from that shown, the weight, height, CB, and parachute requirements must be recomputed.

8-19. Equipment Required

Use the equipment listed in Table 8-1 to rig this load.

CAUTION

Make the final rigger inspection required by FM 10-500 TO 13C7-1-5 before the load leaves the rigging site



c/B

RIGGED LOAD DATA

Weight:	Load shown	36,140 pounds
	Maximum allowed	37,100 pounds
Height		98 inches
Width		108 inches
Length		304 inches
Overhang:	Front	5 inches
	Rear	11 inches
CB (from front edge of platform)		152 inches
Extraction System		EFTC

Figure 8-29. Tractor-dozer rigged for low-velocity airdrop

Table 8-1. Equipment required for rigging the type I, D-5B tractor-dozer for low-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
3990-00-937-0272	Binder, load, 10,000-lb	6
4030-00-090-5354	Clevis, suspension, 1-in (large)	15
4030-00-432-2516	Clevis, screw-pin	4
8305-00-242-3593	Cloth, cotton duck, 60-in	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5782	Coupling, airdrop, extraction force transfer, w 24-ft cable	1
1670-00-360-0328	Cover, clevis, large	6
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
8305-00-958-3685	Felt, 1/2-in thick	As required
1670-01-183-2678	Leaf, extraction line (sling/extraction line panel)	2
1670-01-064-4454	Line, extraction, type XXVI nylon webbing: 60-ft (6-loop) (for C-130 aircraft) or	1
1670-01-062-6312	120-ft (6-loop) (for C-141 aircraft)	1
1670-00-006-2752	Link assembly, four-point	1
	Lumber:	
5510-00-220-6146	2- by 4- by 18-in	9
5510-00-220-6448	2- by 6- by 37-in	2
5510-00-220-6448	2- by 6- by 96-in	2
5315-00-010-4659	Nail, steel wire, common, 8d	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in:	28 sheets
	8- by 16-in	(1)
	12- by 36-in	(1)
	14- by 24-in	(14)
	14- by 36-in	(1)
	16- by 36-in	(1)
	16- by 54-in	(8)
	18- by 36-in	(7)
	18- by 48-in	(26)
	18- by 96-in	(4)
	20- by 24-in	(8)
	20- by 96-in	(8)
	24- by 36-in	(2)
	32- by 36-in	(1)
	36- by 40-in	(9)
	36- by 54-in	(8)
	36- by 56-in	(9)
1670-01-016-7841	Parachute, cargo, G-11C	8
1670-00-040-8135	Parachute, cargo extraction, 28-ft, heavy-duty	2

Table 8-1. Equipment required for rigging the type I, D-5B tractor-dozer for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
	Platform, AD, type V, 24-ft:	1
	Bracket:	
1670-01-162-2375	Inside EFTA	(2)
1670-01-162-2374	Outside EFTA	(2)
1670-01-162-2372	Clevis, load tiedown	(68)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-162-2381	Tandem link	(2)
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in:	5 sheets
	14- by 24-in	(2)
	18- by 96-in	(2)
	20- by 60-in	(4)
	27- by 52-in	(2)
	36- by 40-in	(1)
	36- by 56-in	(1)
	48- by 96-in	(1)
1670-01-097-8817	Release, cargo parachute, M-2 (with modified components)	1
	Sling, cargo, airdrop:	
	For deployment line:	
1670-00-432-2499	3-ft (4-loop), type XXVI nylon webbing	3
1670-00-432-2501	9-ft (4-loop), type XXVI nylon webbing or	1
1670-01-062-6305	9-ft (4-loop), type XXVI nylon webbing	1
	For lifting:	
1670-01-062-6307	12-ft (4-loop), type XXVI nylon webbing	4
	For riser extensions:	
1670-00-432-2494	120-ft (3-loop), type X nylon webbing or	8
1670-01-062-6311	120-ft (2-loop), type XXVI nylon webbing	8
1670-00-998-0116	Strap, parachute release, multicut, comes w 3 knives	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tiedown assembly, 15-ft	57
	Webbing:	
8305-00-268-2411	Cotton, 80-lb	As required
	Nylon, tubular:	
8305-00-082-5752	1/2-in, 1,000-lb, natural	As required
8305-00-268-2455	1-in, 4,000-lb, olive drab	As required
8305-00-261-8584	Nylon, type X, treated, 8,700-lb, olive drab	As required

CHAPTER 9

RIGGING THE JOHN DEERE 450G LT TRACKED COMMERCIAL BULLDOZER ON A 16-FOOT, TYPE V PLATFORM FOR LOW-VELOCITY AIRDROP

9-1. Description of Load

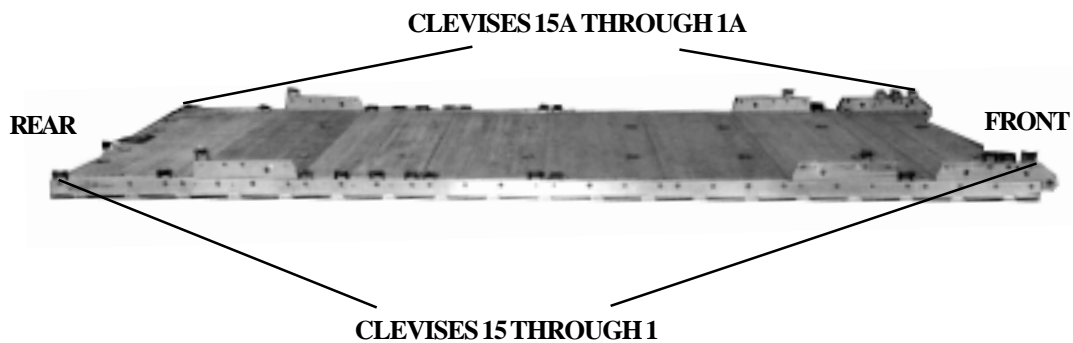
The John Deere 450G Lt Full Tracked Commercial Bulldozer is rigged on a 16-foot, type V airdrop platform with four G-11B cargo parachutes. The unrigged dozer weighs 18,080 pounds reduced to 17,440 pounds with the ROPS removed. It is 180 1/3 inches long. It is 97 inches wide and 108 inches high reduced to 77 inches with the ROPS removed and the back seat back lowered.

9-2. Preparing Platform

Prepare a 16-foot, type V airdrop platform as shown in Figure 9-1.

NOTES:

1. The nose bumper may or may not be installed.
2. Measurements given in this load are from the front edge of the platform, NOT from the front edge of the nose bumper.



Step:

1. Inspect, or assemble and inspect, a 16-foot, type V airdrop platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a tandem link to the front of each platform side rail using holes 1, 2, and 3.
3. Install a suspension link on bushings 6, 7, 8 for forward and 25, 26, and 27 for aft on each platform side rail.
4. Install a clevis on bushings 1, 2, and 3 on the tandem links.
5. Install a clevis on bushing 2 on the forward suspension links.
6. Install a clevis on bushing 3 on the aft suspension links.
7. Starting at the front of each platform side rail, install clevises on the bushings bolted on holes 5, 16, 17, 20, 21, 22, 23, 24, 29, and 32.
8. Starting at the front of the platform, number the clevises 1 through 15 on the right side and 1A through 15A on the left side.
9. Label the tiedown rings according to FM 10-500-2/TO 13C7-1-5.

Figure 9-1. Platform prepared

9-3. Building and Positioning Honeycomb Stacks

Build the honeycomb stacks as shown in Figures 9-2 through 9-6. Position the honeycomb stacks as shown in Figure 9-7.

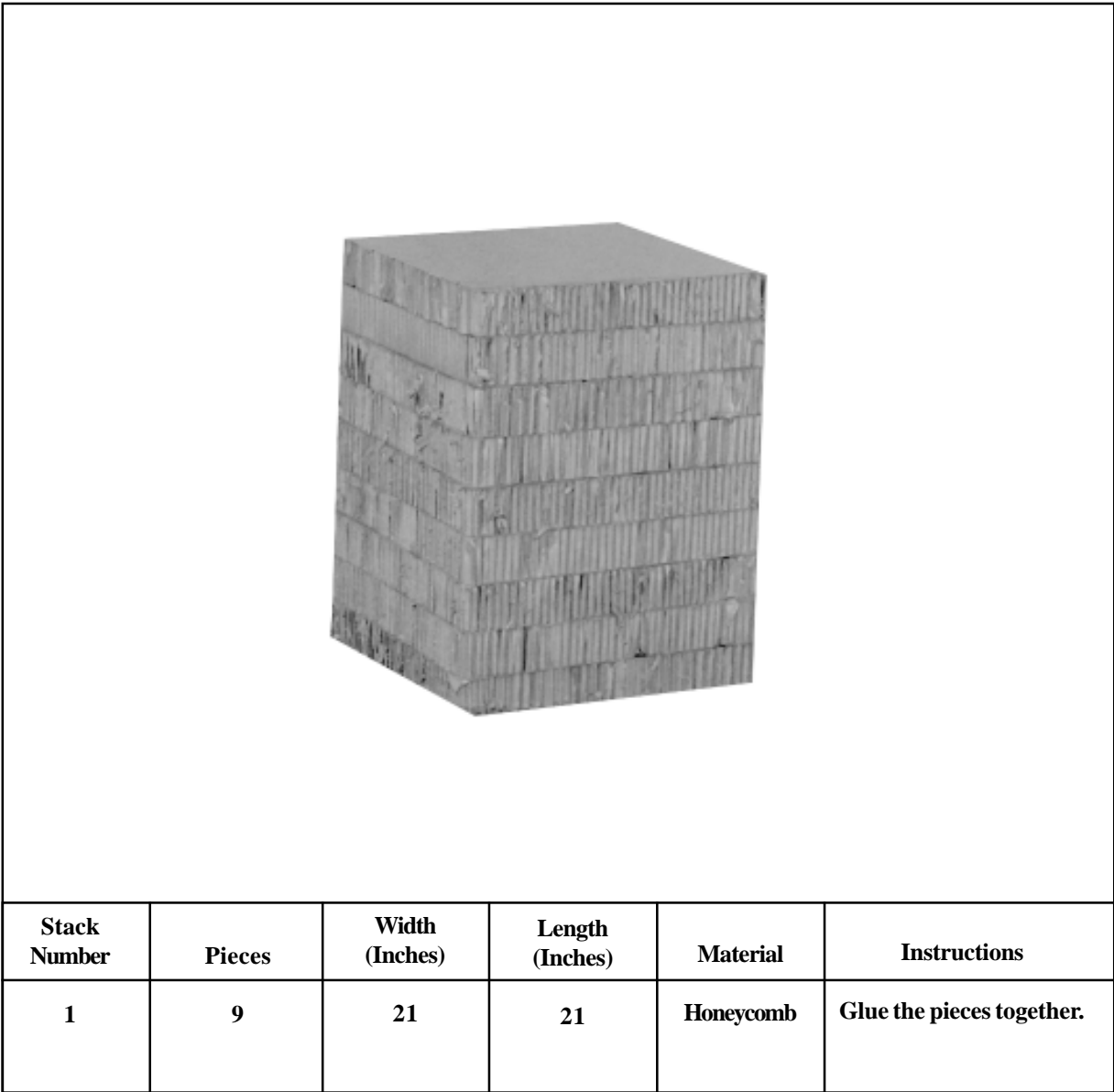


Figure 9-2. Honeycomb stack 1 prepared

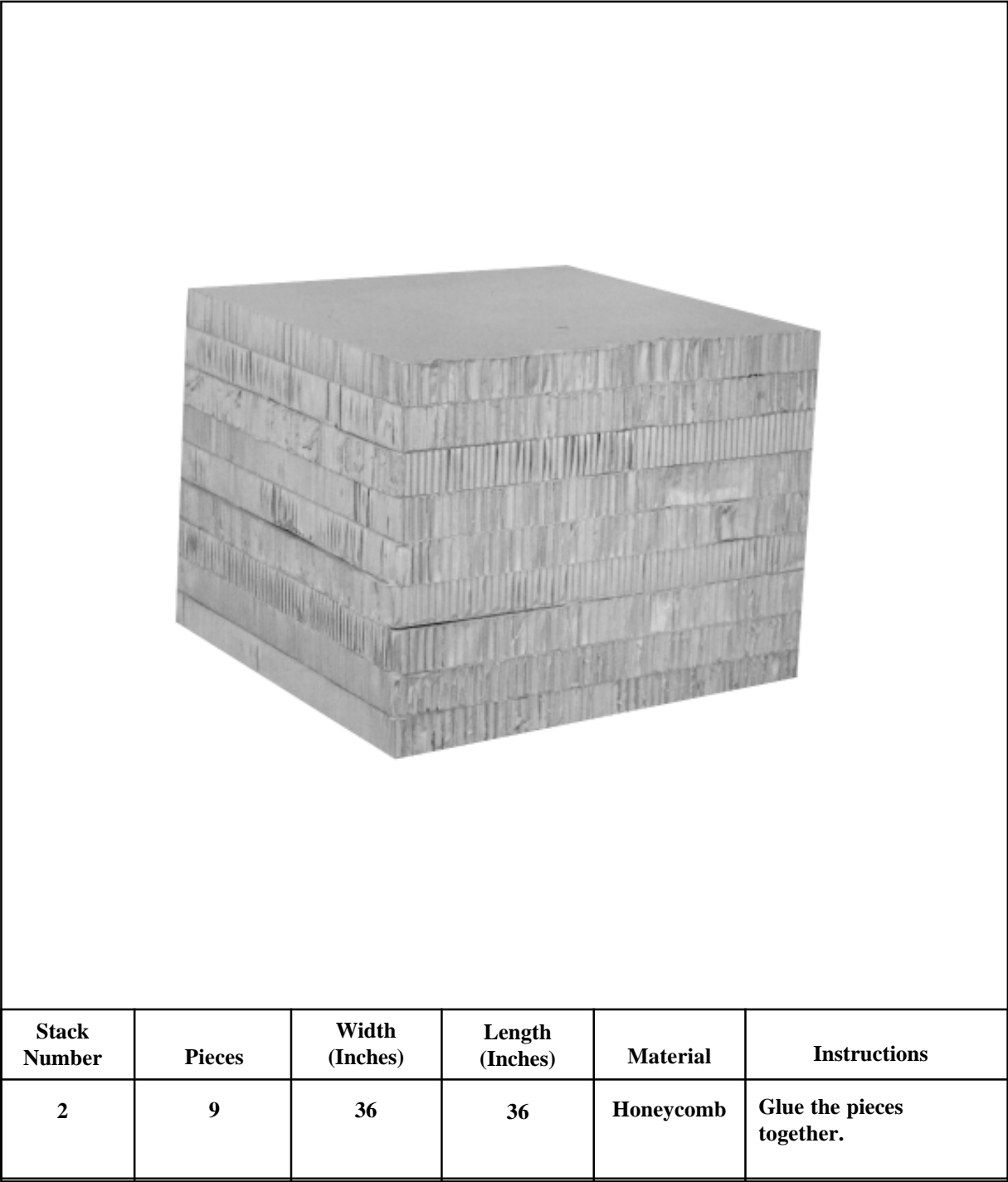
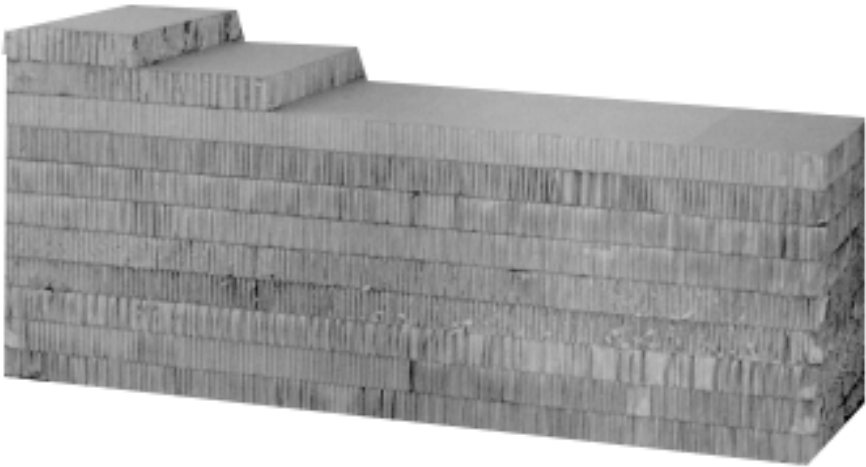
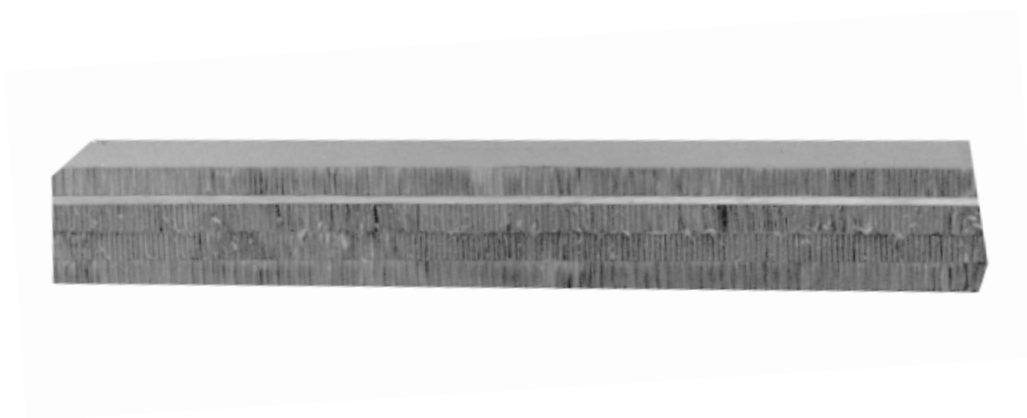


Figure 9-3. Honeycomb stack 2 prepared



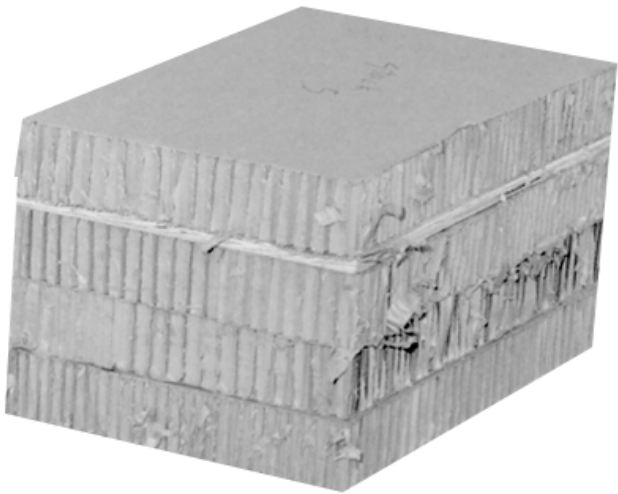
Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
3	9	28	76	Honeycomb	Glue to form the base. Glue to base flush with rear edge. Glue a 28-inch by 26-inch piece flush with rear edge.
	1	28	26	Honeycomb	
	1	28	13	Honeycomb	

Figure 9-4. Honeycomb stack 3 prepared



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
4 and 5	3	18	96	Honeycomb	Glue to form the base.
	1	18	96	3/4-inch plywood	Glue to base.
	1	18	96	Honeycomb	Glue to plywood.

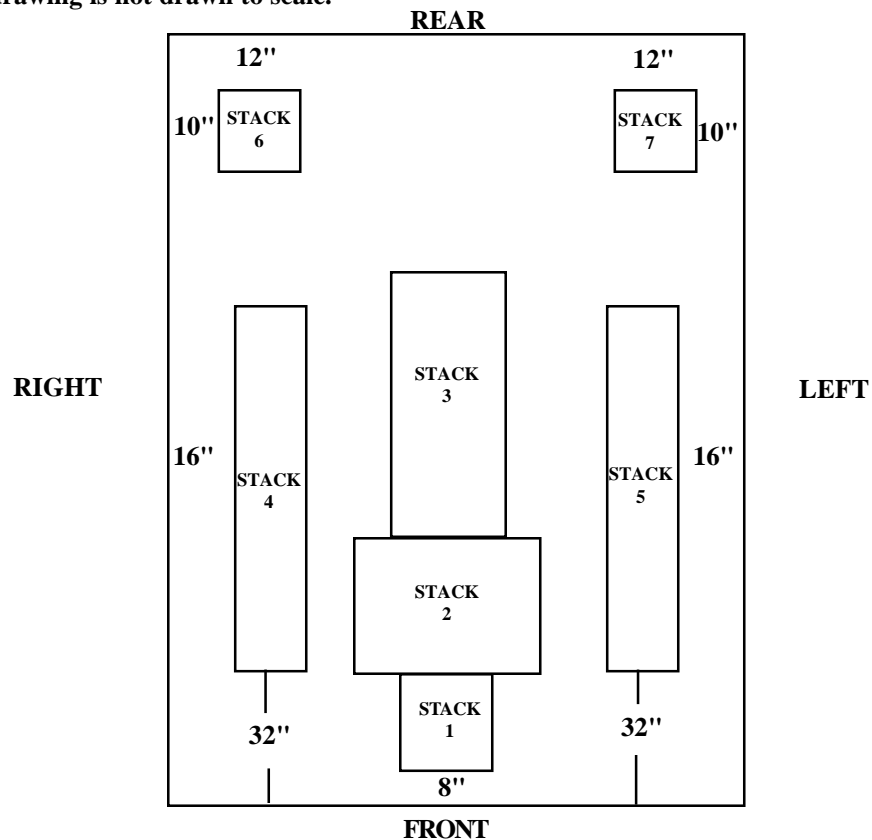
Figure 9-5. Honeycomb stacks 4 and 5 prepared



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
6 and 7	3	24	15	Honeycomb	Glue to form the base.
	1	24	15	3/4-inch plywood	Glue to base.
	1	24	15	Honeycomb	Glue to plywood.

Figure 9-6. Honeycomb stacks 6 and 7 prepared

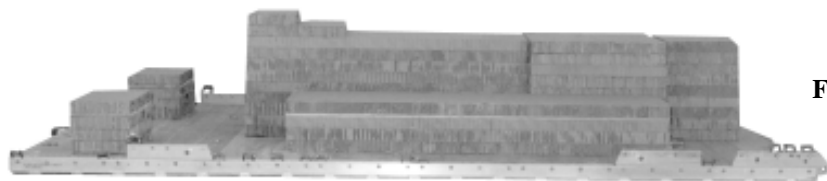
NOTE: This drawing is not drawn to scale.



REAR

FRONT

Step:



1. Position stack 1 centered and 8 inches from the front edge of the platform.
2. Position stack 2 centered and flush with the rear of stack 1.
3. Position stack 3 centered and flush with the rear of stack 2.
4. Position stacks 4 and 5 on each side of the platform 32 inches from the front edge of the platform and 16 inches from the sides of the platform.
5. Position stacks 6 and 7 on each side of the platform 12 inches from the rear edge of the platform and 10 inches from the sides of the platform.

Figure 9-7. Honeycomb stacks positioned on platform

9-4. Preparing Dozer

Prepare the dozer as shown in Figure 9-8.

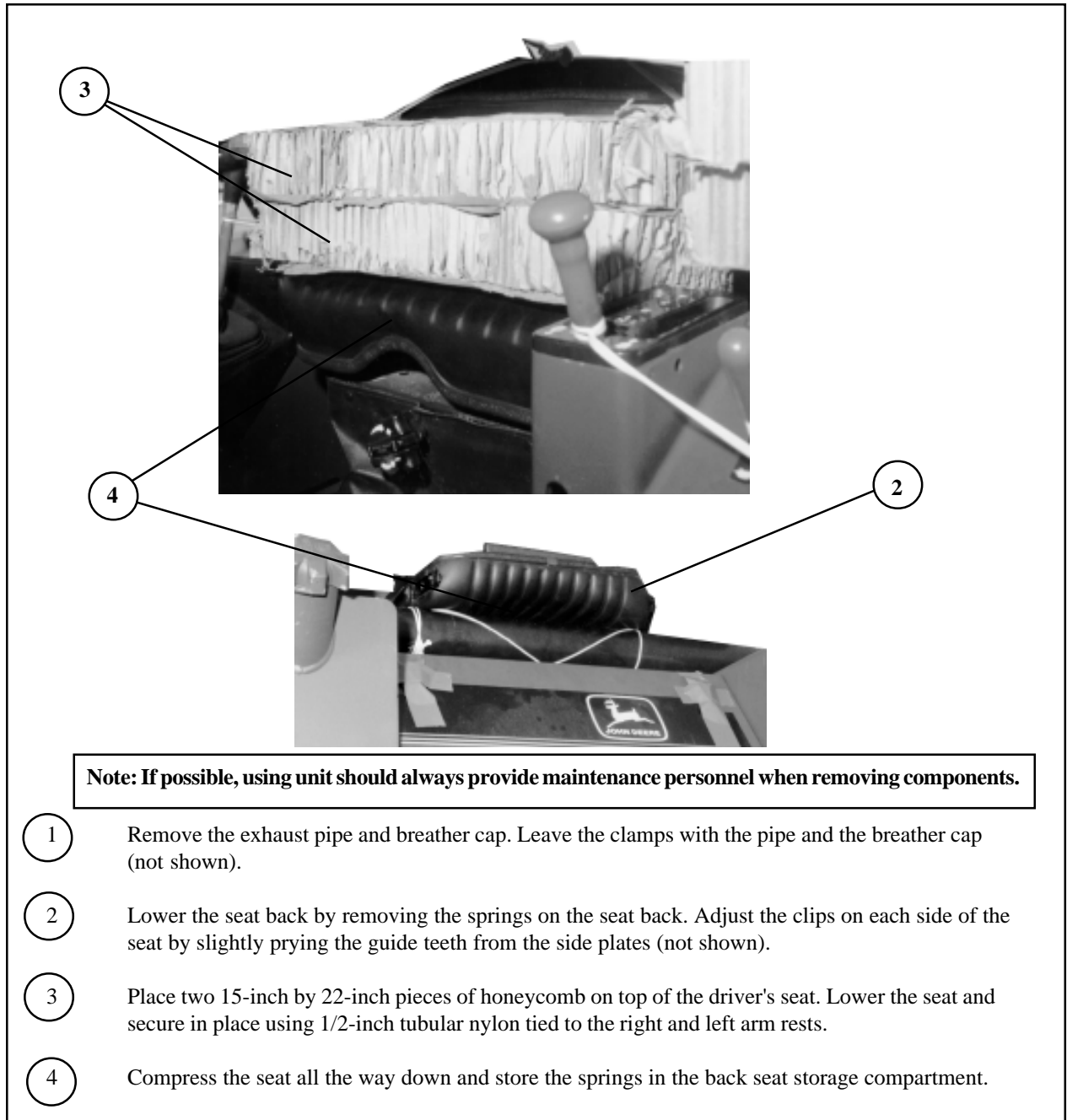
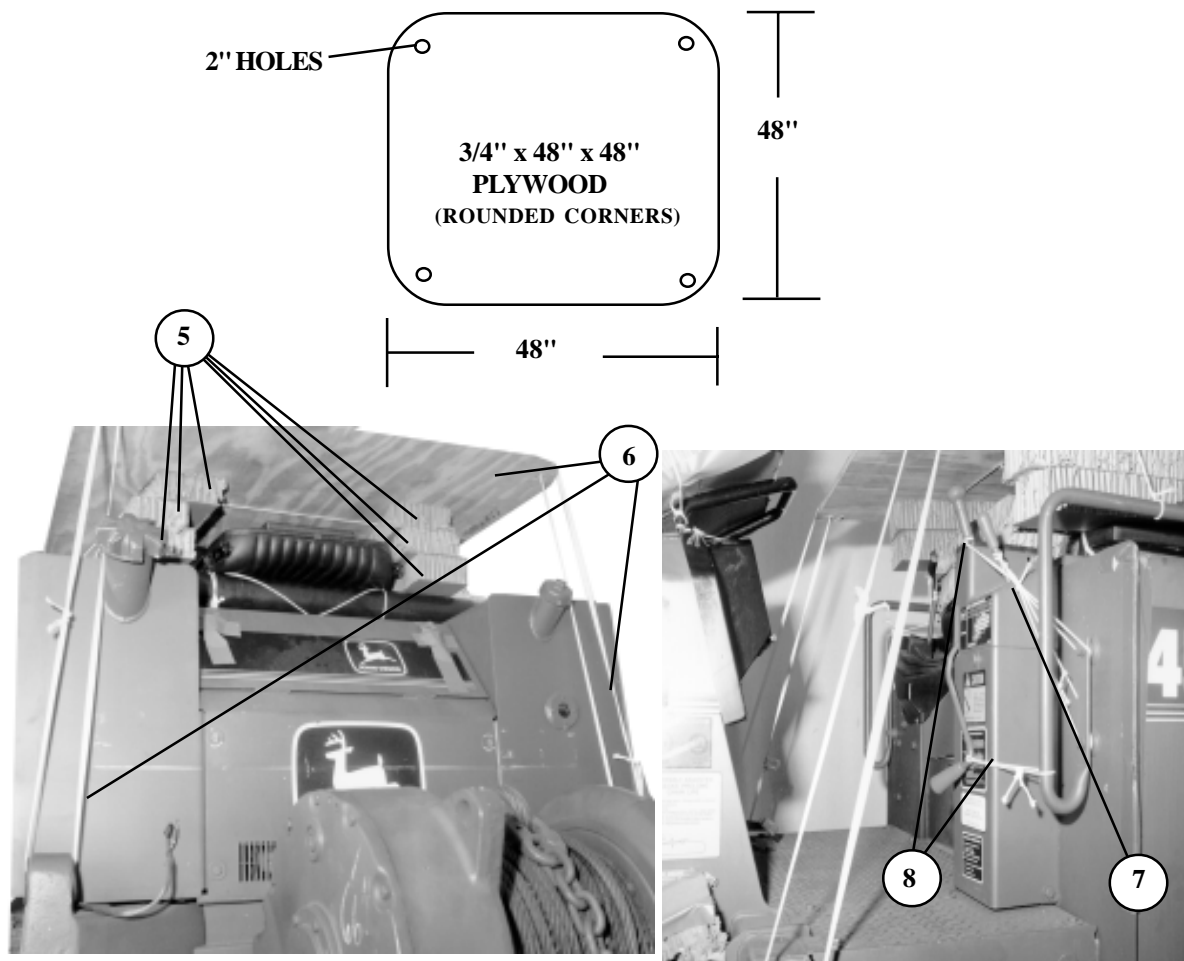
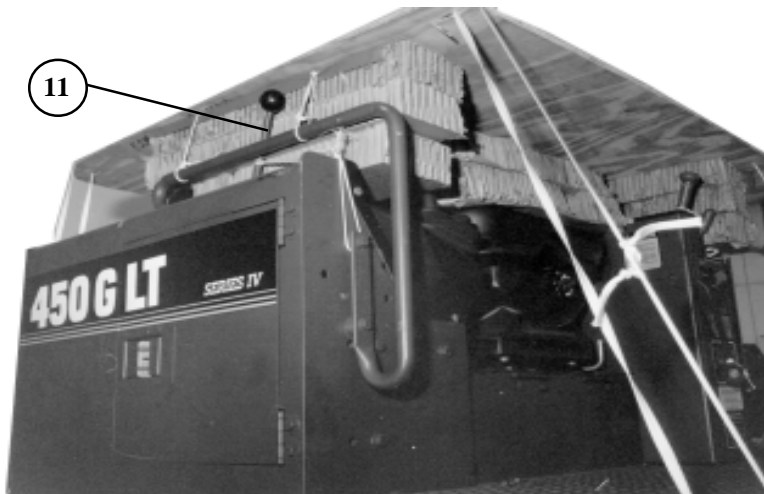
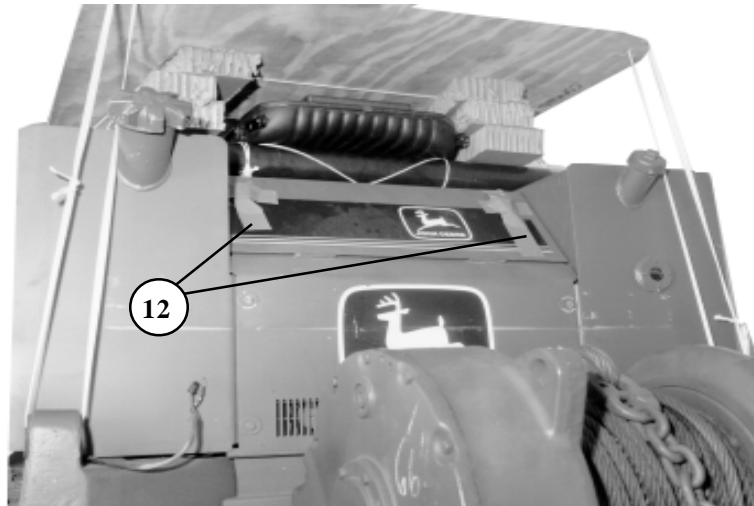


Figure 9-8. Dozer prepared



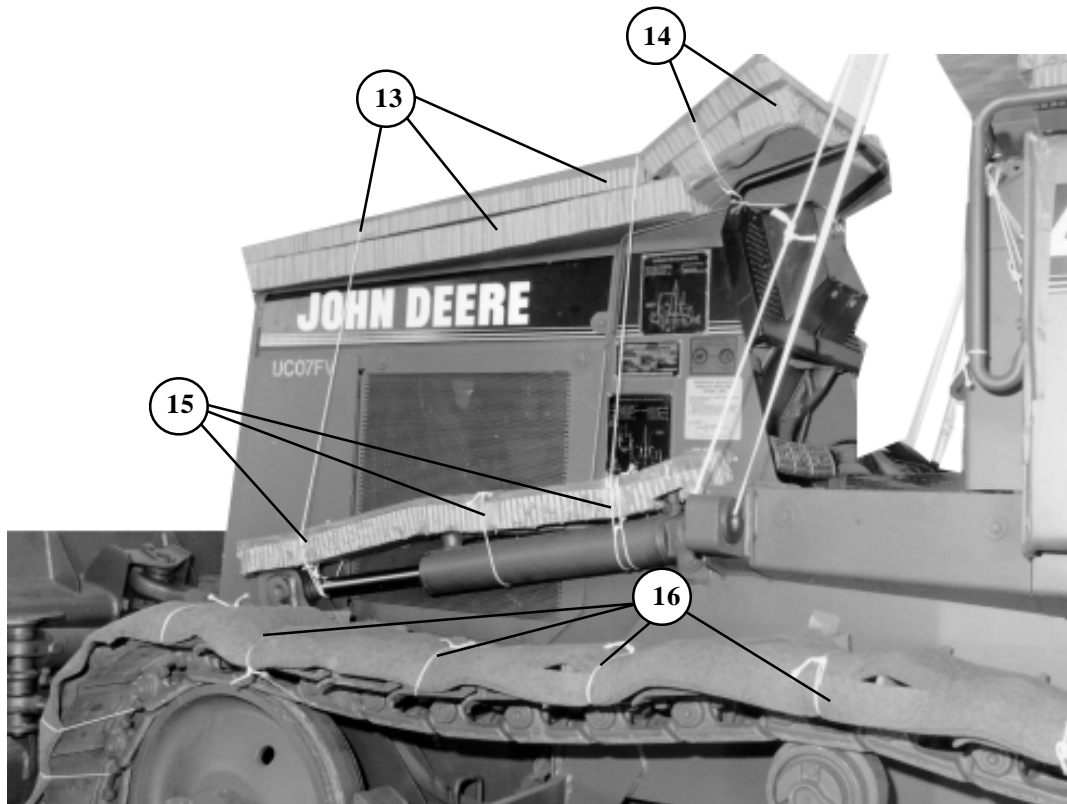
- 5 Cut and glue six 6-inch by 26-inch pieces of honeycomb together. Place three pieces of honeycomb on each side of the arm rests even with the rear edge of the seat back. Secure them to a convenient point with type III nylon cord.
- 6 Cut a piece of plywood with rounded corners as shown. Place it on top of the honeycomb extending to the rear to protect the fuel and hydraulic filler caps. Secure the plywood with 1/2-inch tubular nylon.
- 7 Secure the blade control arm to a convenient point on the rear most position with type III nylon cord.
- 8 Secure to a convenient point the break park lever, gear shift locking arm and the idle control lever in the down position with type III nylon cord.
- 9 Place the ignition keys in the seat back storage.

Figure 9-8. Dozer prepared (continued)



- 10 Lay the exhaust pipe long ways behind the seat and secure in place with type III nylon cord (not shown).
- 11 Secure to a convenient point the winch control lever in the forward position with type III nylon cord.
- 12 Place a piece of honeycomb covering the floor in the storage compartment behind the seat. Pad the breather cap with cellulose wadding and place it on top of the honeycomb. Place the toolbox and all the other dozer accessories in the compartment. Use honeycomb filler to hold the equipment in place. Close the door and tape the latches.

Figure 9-8. Dozer prepared (continued)

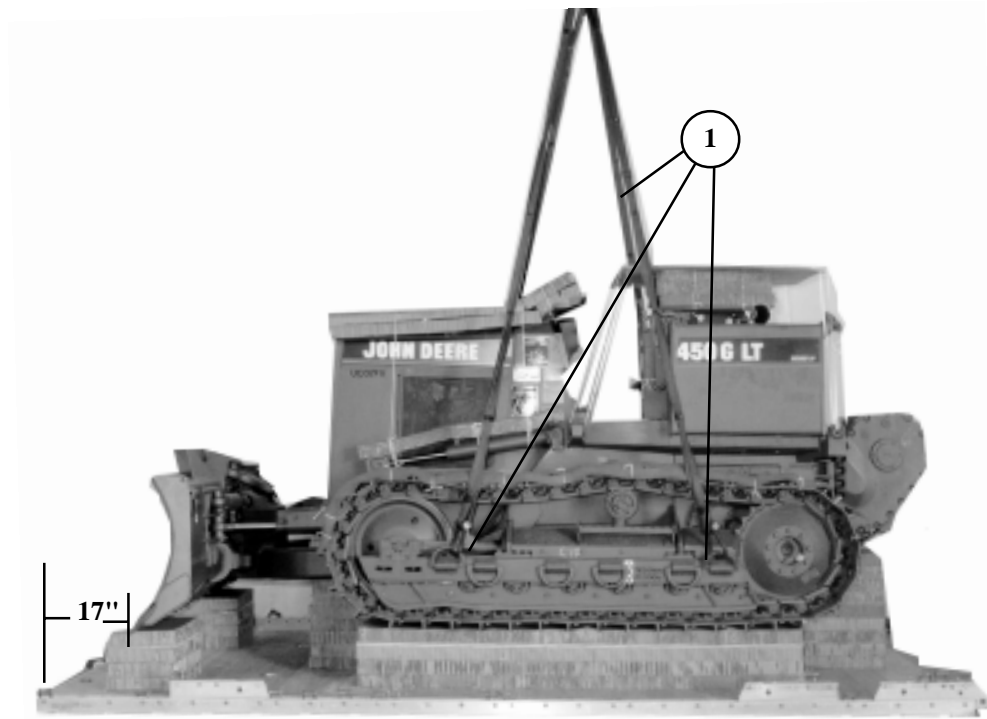


- 13 Cut two 28-inch by 60-inch pieces of honeycomb to cover the engine compartment. Cut holes for the breather and exhaust pipe openings in the bottom layer of honeycomb. Place the honeycomb on the dozer and secure it to a convenient point with type III nylon cord.
- 14 Cut two 28-inch by 12-inch pieces of honeycomb. Place them next to the 28-inch by 60-inch pieces and secure them to a convenient point with type III nylon cord.
- 15 Cut two 6-inch by 48-inch pieces of honeycomb. Place one piece on each hydraulic arm and secure in place to a convenient point with type III nylon cord.
- 16 Cover the top half of the track with 1/2-inch felt and secure the felt to the track with type III nylon cord.

Figure 9-8. Dozer prepared (continued)

9-5. Lifting and Positioning Dozer

Lift and position the dozer as shown in Figure 9-9.



Note: The 17-inch measurement will be taken from the blade base. Place a line on top of stacks 6 and 7, 17 inches from the rear of the platform prior to positioning the dozer.

- ① Attach a 12-foot (4-loop), type XXVI nylon sling to points 2 and 7 on both the right and left sides of the dozer with large clevises.
- ② Position the dozer centered on the platform with the bottom of the blade 17 inches from the rear edge of the platform.
- ③ Remove the slings.

Figure 9-9. Dozer lifted and positioned on platform

9-6. Lashing Load to Platform

Lash the load to the platform as shown in Figure 9-10.

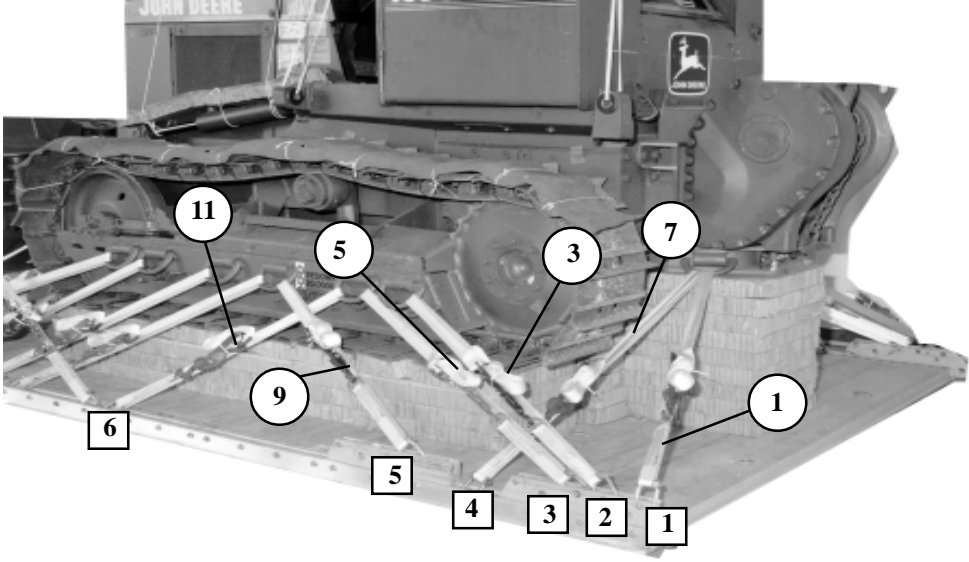
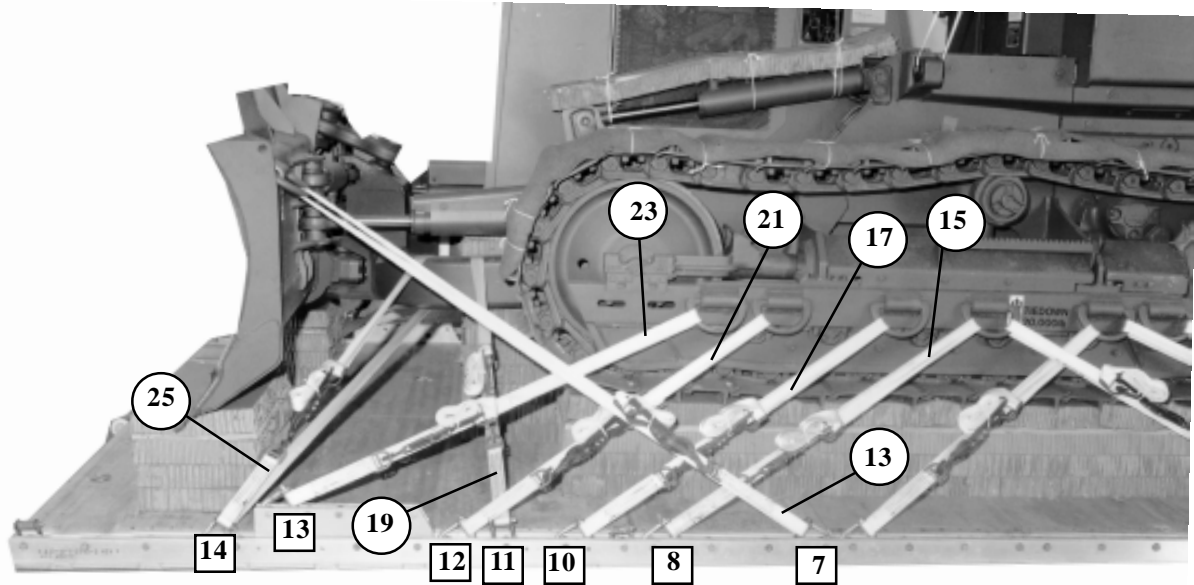
		
Lashing Number	Tiedown Clevis Number	Instructions
1	1	Pass lashing: To tiedown point 8, left side.
2	1A	To tiedown point 8, right side.
3	2	To tiedown point 7, left side.
4	2A	To tiedown point 7, right side.
5	3	To tiedown point 6, left side.
6	3A	To tiedown point 6, right side.
7	4	To tiedown point 8, left side.
8	4A	To tiedown point 8, right side.
9	5	To tiedown point 5, left side.
10	5A	To tiedown point 5, right side.
11	6	To tiedown point 6, left side.
12	6A	To tiedown point 6, right side.

Figure 9-10. Load lashed to platform

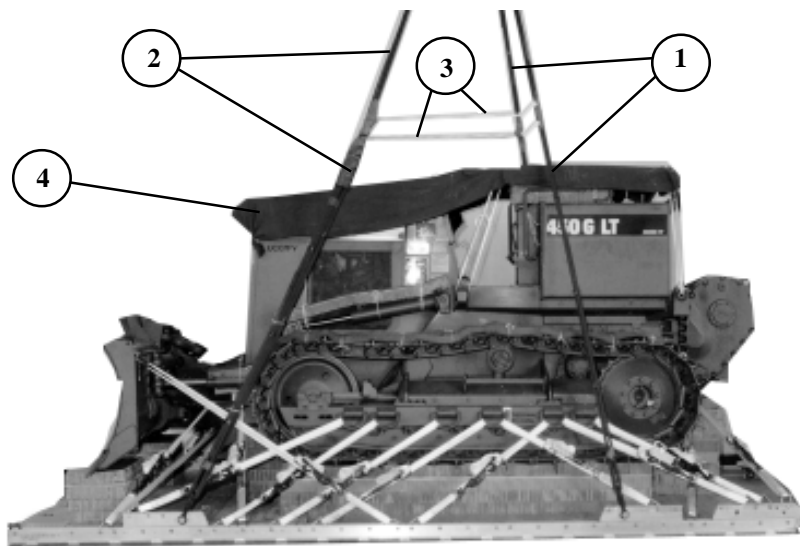


Lashing Number	Tiedown Clevis Number	Instructions
		Pass lashing:
13	7	To tiedown point 1, left side.
14	7A	To tiedown point 1, right side.
15	8	To tiedown point 5, left side.
16	8A	To tiedown point 5, right side.
17	10	To tiedown point 4, left side.
18	10A	To tiedown point 4, right side.
19	11	Around yoke of blade support, left side.
20	11A	Around yoke of blade support, right side.
21	12	To tiedown point 3, left side.
22	12A	To tiedown point 3, right side.
23	13	To tiedown point 2, left side.
24	13A	To tiedown point 2, right side.
25	14	Around yoke of blade support, left side.
26	14A	Around yoke of blade support, right side.

Figure 9-10. Load lashed to platform (continued)

9-7. Installing Suspension Slings, Deadman's Tie and Load Cover

Install the suspension slings, deadman's tie and the load cover as shown in Figure 9-11.

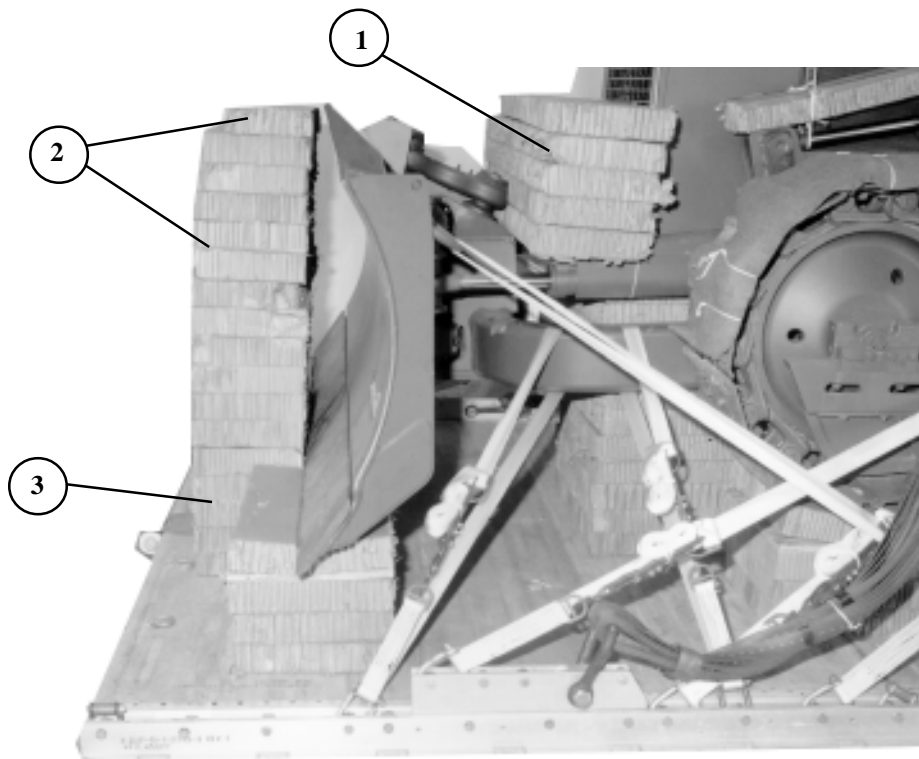


- 1 Attach a 16-foot (4-loop), type XXVI nylon suspension sling to a large clevis and attach that to each front suspension link.
- 2 Run both ends of a 16-foot (4-loop), type XXVI nylon suspension sling through a large clevis and attach that to each rear suspension link. Join the ends of each sling together with a 3 3/4-inch link and a 9-foot (4-loop), type XXVI suspension sling. Pad each 3 3/4-inch link.
- 3 Raise the slings and install the deadman's tie according to FM 10-500-2/TO 13C7-1-5.
- 4 Place a 60-inch by 120-inch piece of canvas over the top of the dozer as a load cover and secure the cover in place with type III nylon cord to a convenient point.

Figure 9-11. Suspension slings, deadman's tie and load cover installed

9-8. Building and Positioning Parachute Stowage Platform Support Stacks

Build and position two parachute stowage platform support stacks as shown in Figure 9-12.



- ① Cut and glue five 12-inch by 48-inch pieces of honeycomb together and place the stack on top of the blade support arms. Crush the bottom piece down to level the stack out.
- ② Cut and glue sixteen 12-inch by 36-inch pieces of honeycomb together. Cut and glue a 9-inch by 36-inch piece of honeycomb on top.
- ③ Position the honeycomb stack between stacks 6 and 7, flush with the blade. The top outside edge of the top piece of honeycomb on the stack will be to the front of the load.

Figure 9-12. Parachute stowage platform support stacks built and positioned

9-9. Building Parachute Stowage Platform

Build a parachute stowage platform as shown in Figure 9-13.

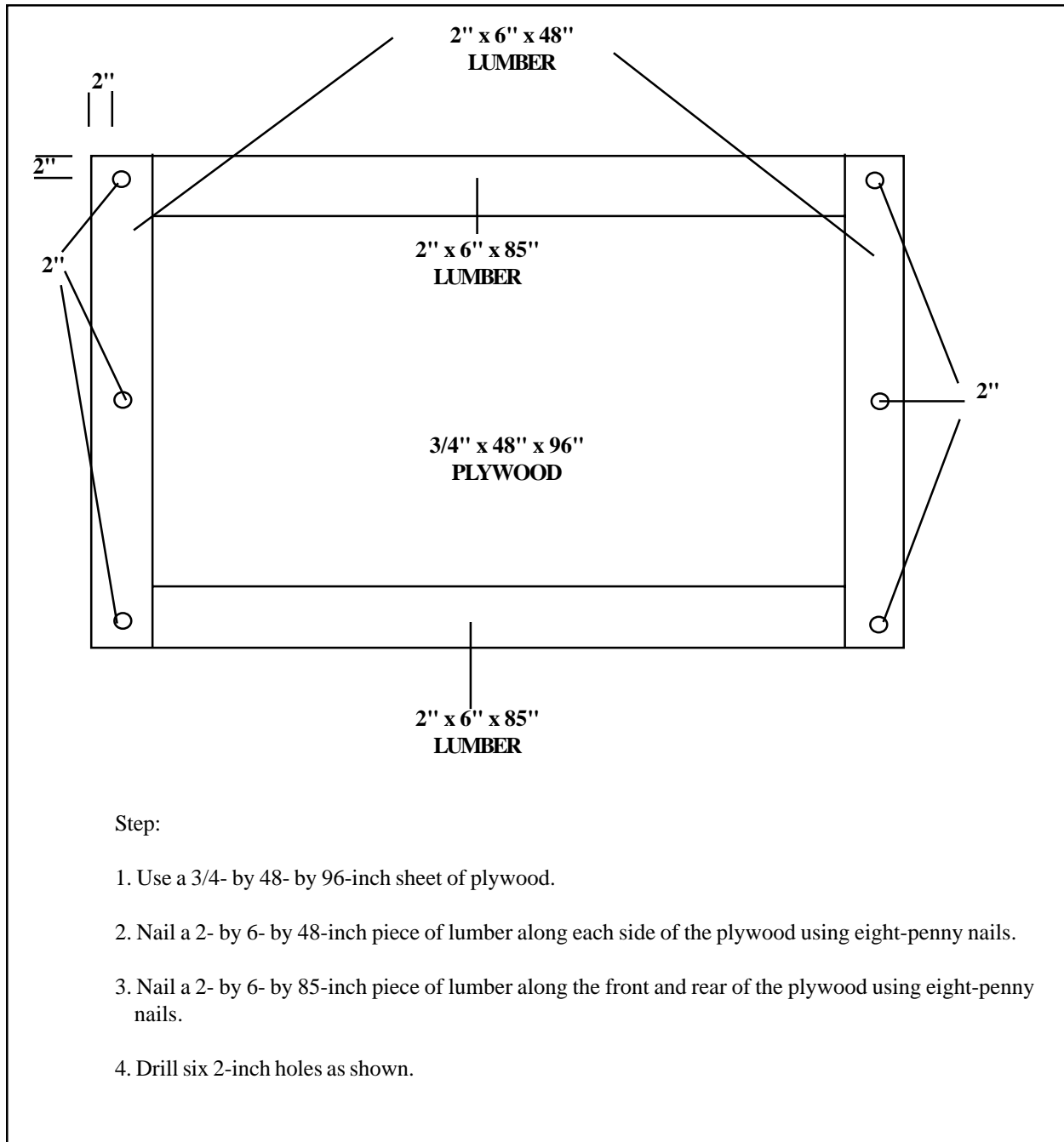
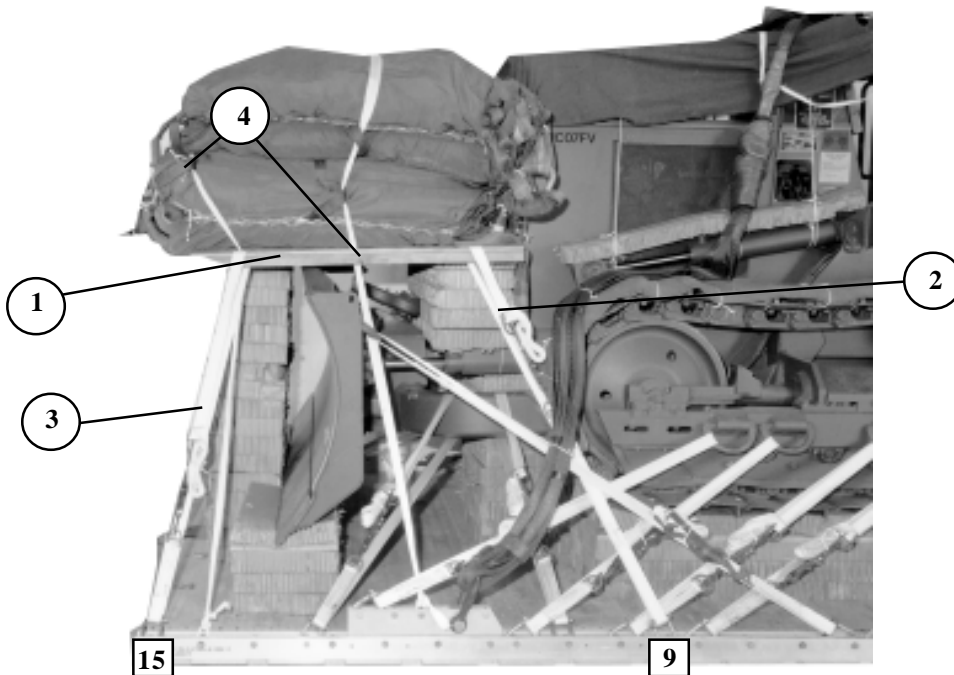


Figure 9-13. Parachute stowage platform built

9-10. Installing Parachute Stowage Platform, Preparing and Stowing Cargo Parachutes

Install the parachute stowage platform on top of the support stacks.
Prepare and stow the cargo parachutes as shown in Figure 9-14.



- ① Set the stowage platform on the two stacks of honeycomb.
- ② Run a 15-foot tiedown strap through clevis 9, up through the forward hole of the stowage platform. Bind the strap with a D-ring and a load binder. Lash the left side using clevis 9A.
- ③ Run a 15-foot tiedown strap through clevis 15, up through the rear hole of the stowage platform. Bind the strap with a D-ring and a load binder. Lash the left side using clevis 15A.
- ④ Prepare, stow and restrain four G-11B cargo parachutes according to FM 10-500-2/TO 13C7-1-5. Restrain the parachutes through the center holes of the stowage platform using bushing 2 on the rear suspension link on both sides of the platform and through the rear holes of the stowage platform using platform bushing 32 on both sides of the platform.

Figure 9-14. Parachute stowage platform installed and cargo parachutes prepared and stowed

9-11. Installing Extraction System

Install the EFTC as shown in Figure 9-15.

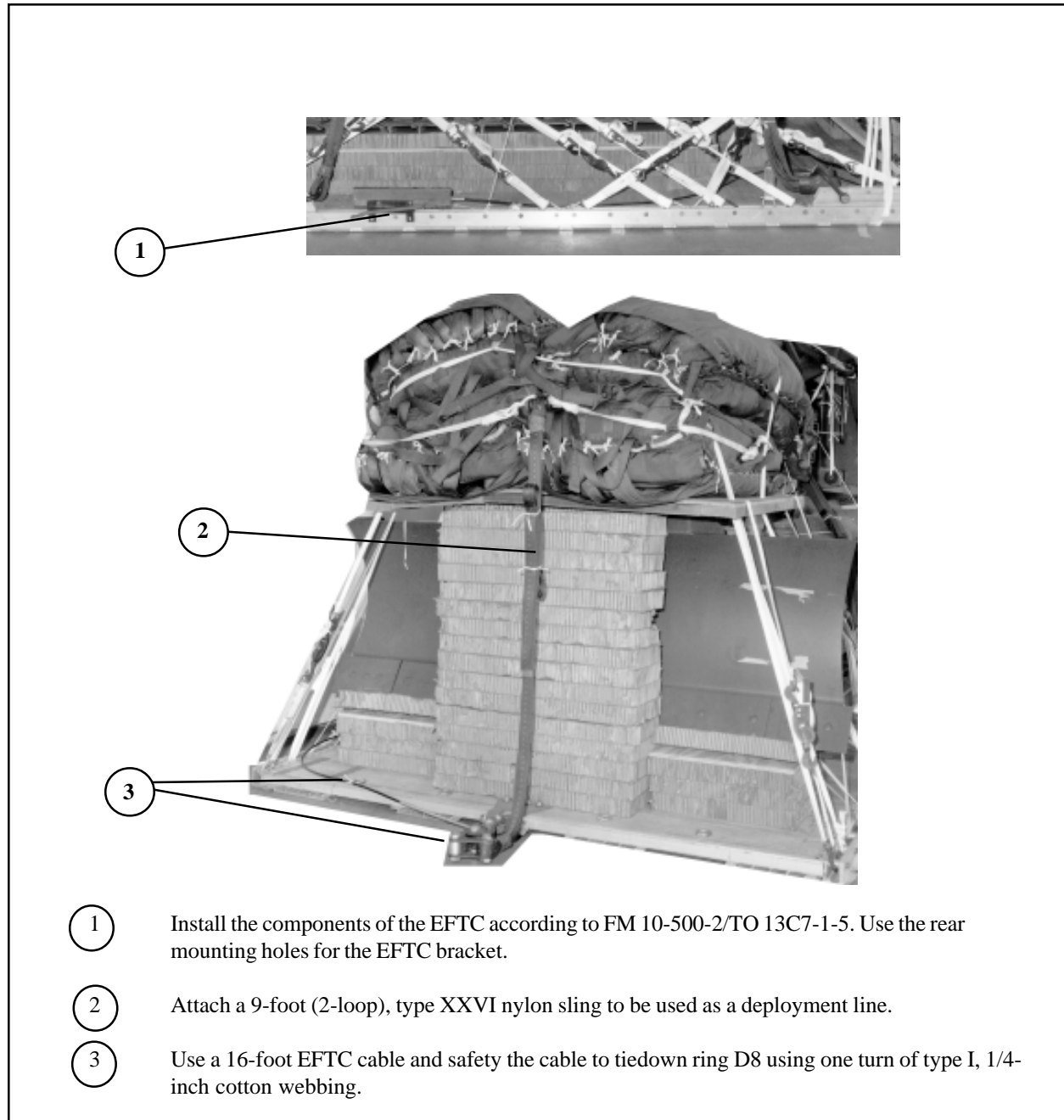


Figure 9-15. Extraction system installed

9-12. Installing Parachute Release

Prepare, attach, and safety an M-2 release according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 9-16.

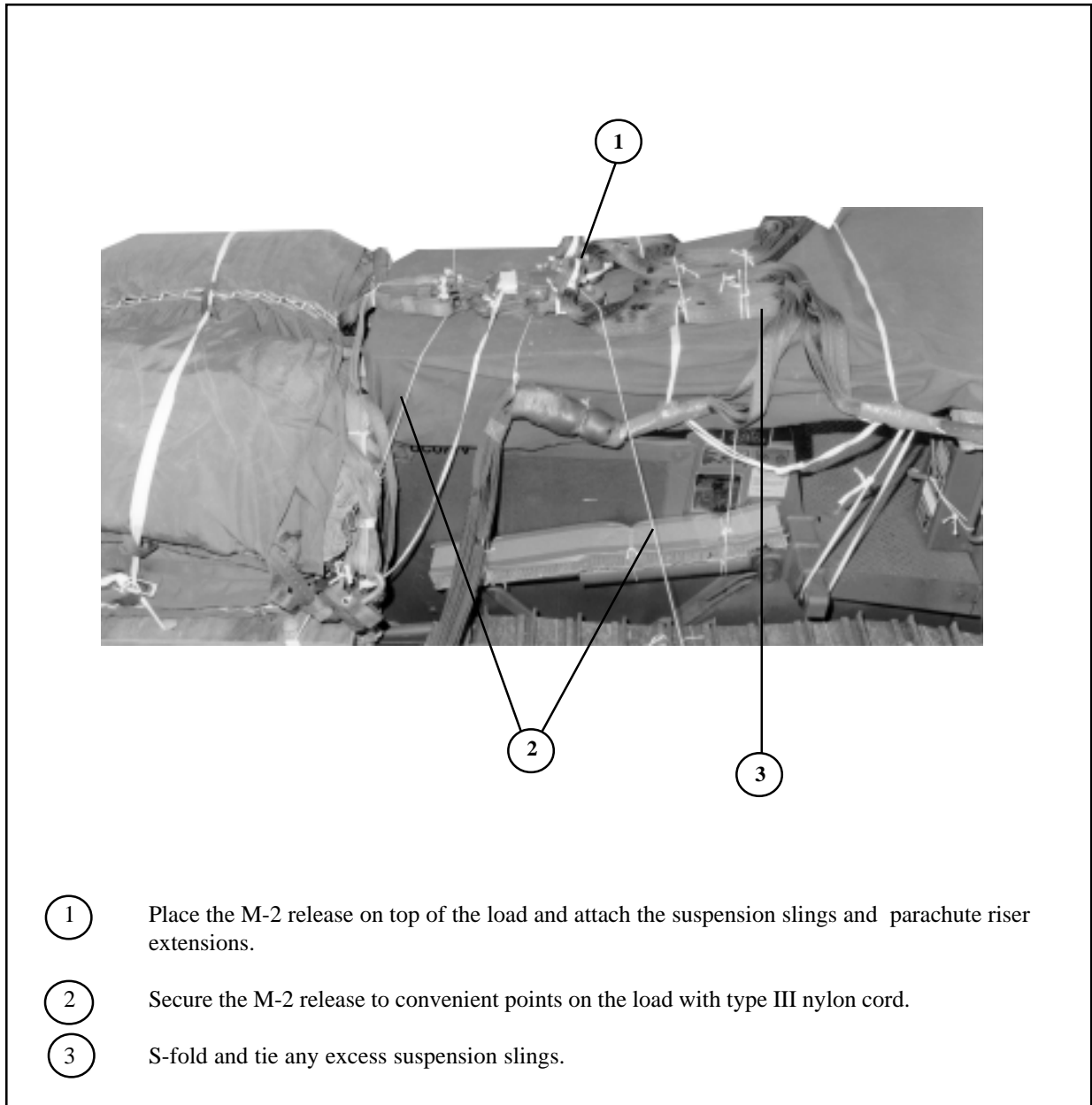


Figure 9-16. M-2 cargo parachute release installed

9-13. Placing Extraction Parachute

Select the extraction parachute and extraction line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction line on the load for installation in the aircraft.

9-14. Installing Provisions for Emergency Restraints

Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in FM 10-500-2/TO 13C7-1-5.

9-15. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 9-17. Complete Shipper's Declaration for Dangerous Goods and affix to load. If the load varies from the one shown, the weight, height, CB, tip off curve, and parachute requirements must be recomputed.

9-16. Equipment Required

Use the equipment listed in Table 9-1 to rig the load shown in Figure 9-17.

CAUTION

**Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5
before the load leaves the rigging site.**

**RIGGED LOAD DATA**

Weight.....20,960 pounds

Height.....94 inches

Width.....108 inches

Length.....214 inches

Overhang: Front.....5 inches

Rear.....17 inches

**Center of Balance (CB)
(from front edge of the platform).....84 inches**

Extraction System.....EFTC

*Figure 9-17. John Deere 450G Lt full-tracked bulldozer rigged on a
16-foot type V platform for low-velocity airdrop*

Table 9-1. Equipment required for rigging the John Deere 450G Lt full-tracked commercial bulldozer on a 16-foot, type V airdrop platform for low-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal.	As required
4030-00-090-5354	Clevis, suspension, 1-in (large)	4
8305-00-242-3593	Cloth, cotton duck, 60-in.	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb.	As required
1670-00-434-5785	Coupling, airdrop extraction force transfer cable, 16-ft	1
	Cover:	
1670-00-360-0328	Clevis, large	1
1670-00-360-0329	Link, type IV	1
8305-00-958-3685	Felt, 1/2-in thick	As required
1670-01-183-2678	Leaf, extraction line (line bag)	2
	Line extraction:	
1670-01-062-6313	60-ft (3-loop), type XXVI (for C-130)	1
1670-01-107-7651	140-ft (3-loop), type XXVI (for C-141,C-5 or C-17)	1
1670-01-064-4452	60-ft (1-loop), type XXVI with towplate link (for C-17)	1
1670-00-783-5988	Link assembly, type IV	1
1670-00-753-3928	Pad, energy-dissipating, (honeycomb), 3- by 36- by 96-in:	22 sheets
	6- by 26-in	(6)
	12- by 36-in	(16)
	12- by 48-in	(5)
	15- by 22-in	(2)
	18- by 96-in	(8)
	21- by 21-in	(9)
	24- by 15-in	(8)
	28- by 12-in	(2)
	28- by 76-in	(9)
	36- by 36-in	(9)
	Parachute, cargo	
1670-01-016-7841	G-11B	4
	Parachute, cargo extraction	
1670-00-040-8135	28-ft	1
1670-01-063-3715	15-ft drogue (for C-17)	1
	Platform, airdrop, type V,16-ft:	
1670-01-162-2372	Clevis, assembly (type V)	(30)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-162-2381	Tandem link assembly (Multipurpose link)	(4)
	Platform, stowage:	
5510-00-220-6148	Lumber, 2- by 6- by:	
	48-in	(2)
	85-in	(2)
5530-00-128-4981	Plywood, 3/4-in:	4 sheets
	18- by 96-in	2
	24- by 15-in	2

Table 9-1. Equipment required for rigging the John Deere 450G Lt full-tracked commercial bulldozer on a 16-foot, type V airdrop platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop:	
1670-01-062-6304	9-ft (2-loop), type XXVI	1
1670-01-062-6305	9-ft (4-loop), type XXVI	2
1670-01-062-6307	12-ft (4-loop), type XXVI	4
5340-01-062-6308	16-ft (4-loop), type XXVI	4
1670-00-040-8219	Strap, parachute release with fastener and knife	2
7501-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tiedown assembly, 15-ft	30
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
8305-00-082-5752	Nylon, tubular 1/2-in	As required

CHAPTER 10

RIGGING THE DEPLOYABLE UNIVERSAL COMBAT EARTHMOVER (DEUCE) ON A 24-FOOT, TYPE V PLATFORM FOR LOW-VELOCITY AIRDROP

10-1. Description of Load

The Deployable Universal Combat Earthmover (DEUCE), Figure 10-1, is rigged on a 24-foot type V airdrop platform with eight G-11 cargo parachutes. The unrigged DEUCE weighs 35,000 pounds. It is 112 inches high reduced to 90 inches in the kneeling position for airdrop. The rigged load is 310 inches long, 101 1/2 inches high and 110 inches wide.

10-2. Preparing Platform

Prepare a 24-foot, type V airdrop platform as shown in Figure 10-2.

NOTES:

1. The nose bumper may or may not be installed.
2. Measurements given in this load are from the front edge of the platform, NOT from the front edge of the nose bumper.

NOTE: Remove the cab for airdrop.

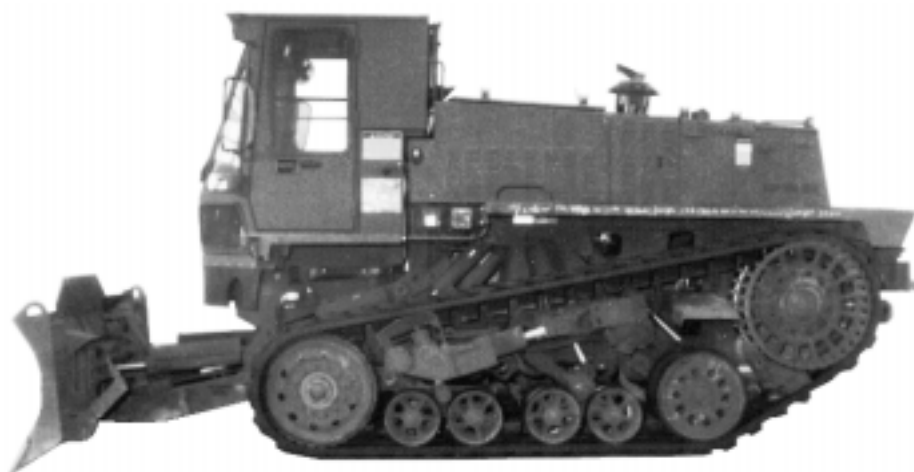
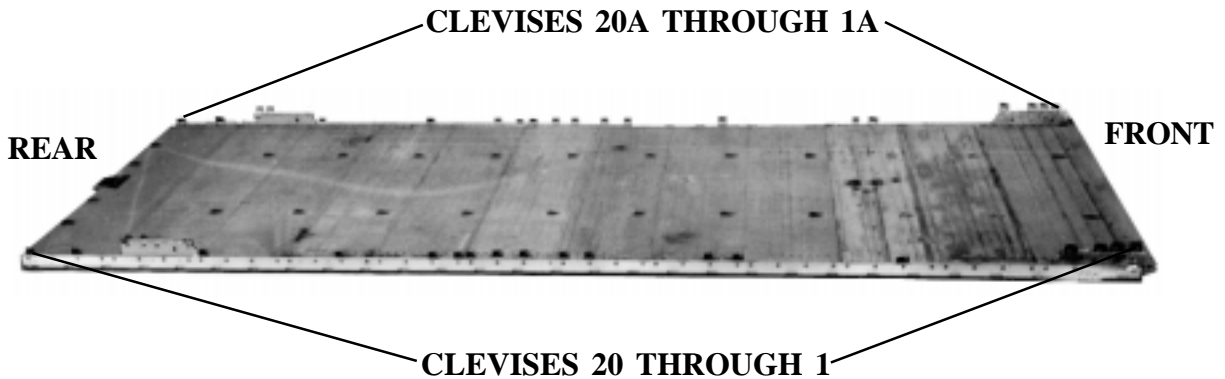


Figure 10-1. Deployable Universal Combat Earthmover



Step:

1. Inspect, or assemble and inspect, a 24-foot, type V airdrop platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a tandem link to the front of each platform side rail using holes 1, 2, and 3.
3. Install a suspension link to the right and left platform side rails using holes 41, 42, and 43. The links are required to lift the load after rigging is completed.
4. Install a clevis on bushings 1, 2, 3, and 4 of each tandem link.
5. Install a clevis on bushing 3 and a doubled clevis on bushing 4 of each suspension link.
6. Starting at the front of the right platform side rail, install clevises on the bushings bolted to holes 10, **17**, 18, 23, 24, 26, 27, 28, 29, 30, 34, 40, 46, and 48.
7. Starting at the front of the left platform side rail, install clevises on the bushings bolted to holes 10, **11**, 18, 23, 24, 26, 27, 28, 29, 30, 34, 40, 46, and 48.
8. Starting at the front of the platform, number the clevises 1 through 20 on the right side, and 1A through 20A on the left side.
9. Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 10-2. Platform prepared

10-3. Building and Positioning Honeycomb Stacks

10-3 through 10-6. Position the honeycomb stacks as shown in Figure 10-7.

Build the honeycomb stacks as shown in Figures

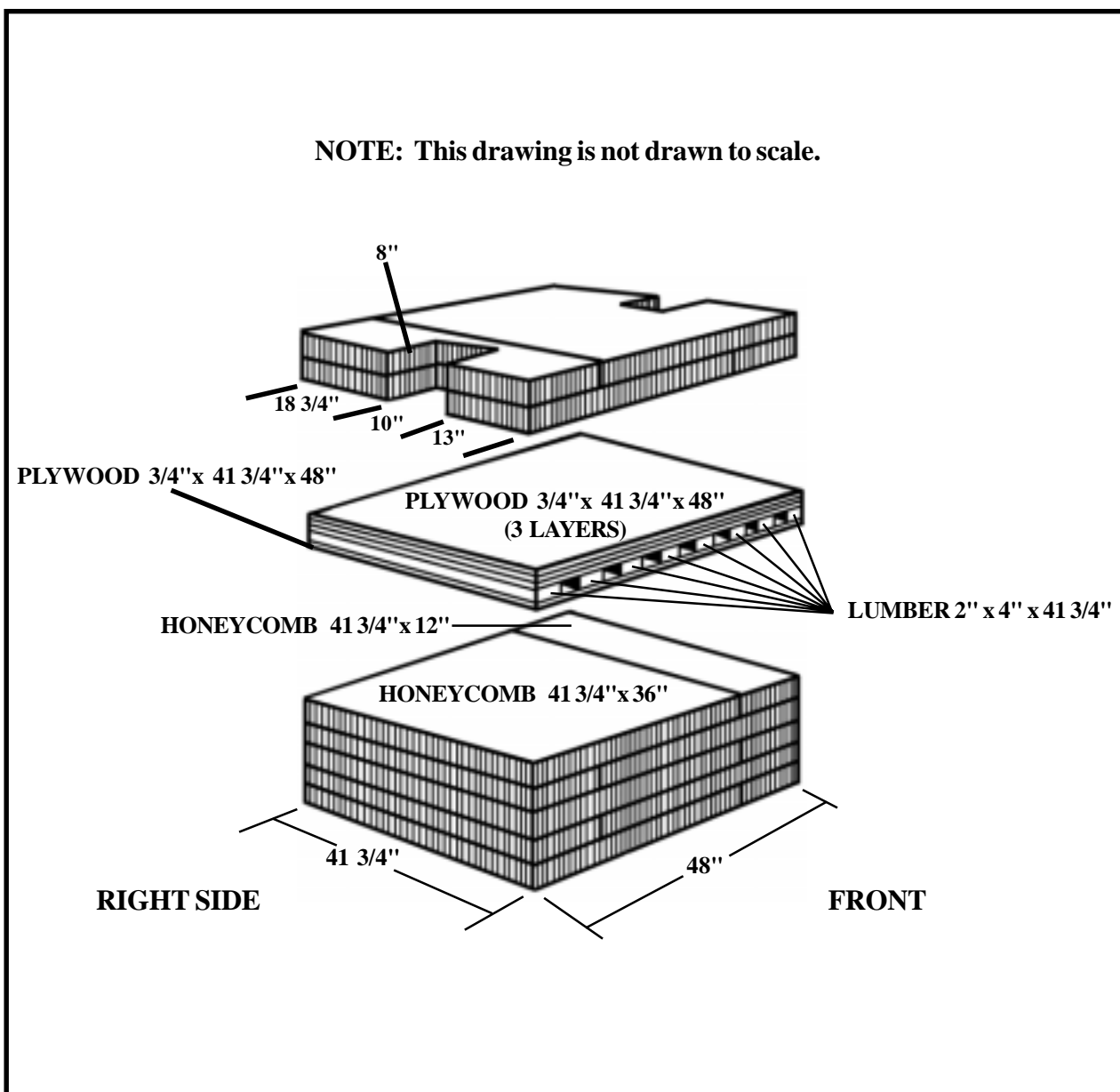


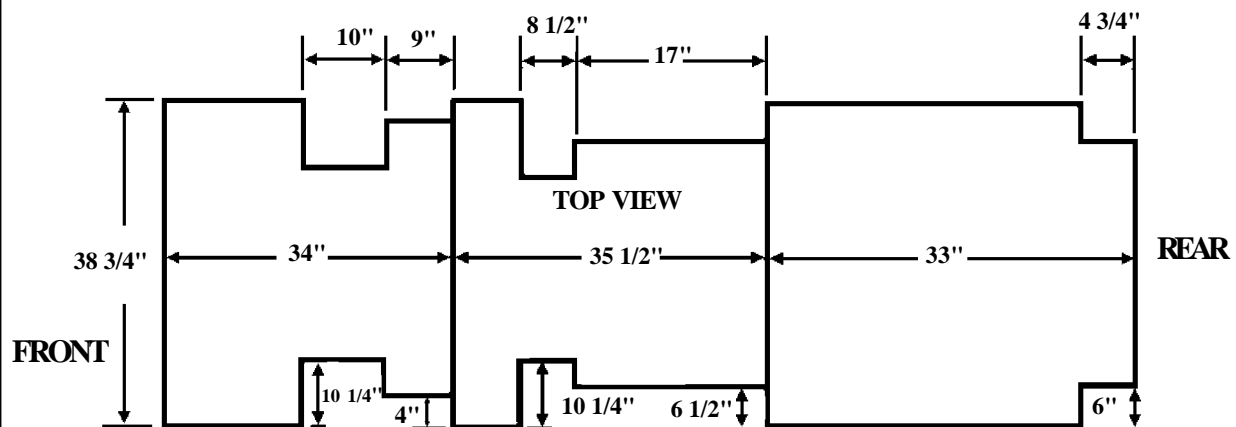
Figure 10-3. Stack 1 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
1	5 5	36 12	41 3/4 41 3/4	Honeycomb Honeycomb	Alternate and glue the 41 3/4" x 36" piece with the 41 3/4" x 12" piece to form a base.
	4 8	48	41 3/4 41 3/4	3/4" Plywood 2" x 4" Lumber	Place and nail a 2" x 4" piece of lumber flush on each 41 3/4" side of a piece of plywood. Place and nail the remaining six pieces of 2" x 4" lumber, 3" apart from each other, to the plywood. Place and nail the remaining three pieces of plywood on top of and flush with the 2" x 4" pieces of lumber. Glue the plywood and lumber on top of the honeycomb base.
	2 2	36 12	41 3/4 41 3/4	Honeycomb Honeycomb	Alternate and glue the 41 3/4" x 36" pieces and the 41 3/4" x 12" pieces together. Make a 10" long by 8" deep cutout on each 41 3/4" side, 13" from the front edge. Glue the honeycomb on top of and flush with the plywood.

Figure 10-3. Stack 1 prepared (continued)

NOTE: This drawing is not drawn to scale.

TOP VIEW (TWO LAYERS OF HONEYCOMB)



PLYWOOD 3/4" x 38 3/4" x 51 1/4"
TWO PIECES PLACED END TO END

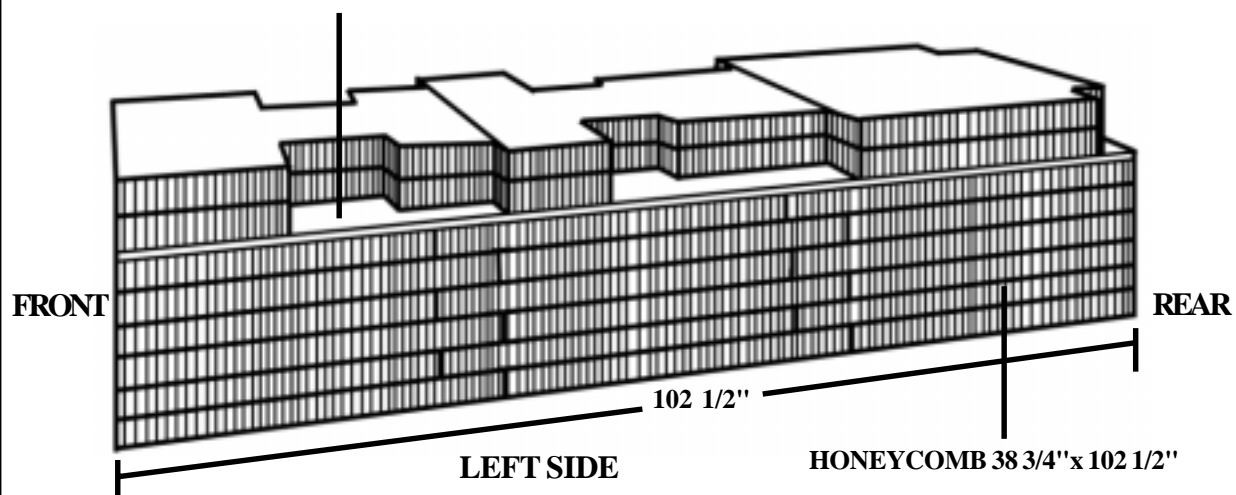


Figure 10-4. Stack 2 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
2	12 6	38 3/4 38 3/4	36 30 1/2	Honeycomb Honeycomb	Place a 30 1/2" x 38 3/4" piece of honeycomb beside two pieces of 36" x 38 3/4" honeycomb forming a 38 3/4" x 102 1/2" layer. Alternate the pieces in the following layers to form a base six layers high. Glue all layers together.
	2	38 3/4	51 1/4	3/4" Plywood	Place and glue the plywood end to end on top of the honeycomb base.
	2	38 3/4	33	Honeycomb	Cut a notch 4 3/4" long by 6" deep on each corner of one 38 3/4" side of each piece of honeycomb. Align the notches and glue the layers together. Glue the honeycomb to the plywood with the notches facing rear.
	2	38 3/4	35 1/2	Honeycomb	Cut a notch 17" long by 6 1/2" deep along each 35 1/2" side of each piece of honeycomb measured from the rear. Cut a second notch 8 1/2" long by 10 1/4" deep on both sides of both pieces of honeycomb measured from the front of the first notch. Align the notches and glue the honeycomb pieces together. Glue the honeycomb to the plywood with the notches facing rear and against the previously placed stack.
	2	38 3/4	34	Honeycomb	Cut a notch 9" long by 4" deep along each 34" side of each piece of honeycomb measured from the rear. Cut a second notch 10" long by 10 1/4" deep on both sides of both pieces of honeycomb measured from the front of the first notch. Align the notches and glue the honeycomb pieces together. Glue the honeycomb to the plywood with the notches facing rear and against the previously placed stack.

Figure 10-4. Stack 2 prepared (continued)

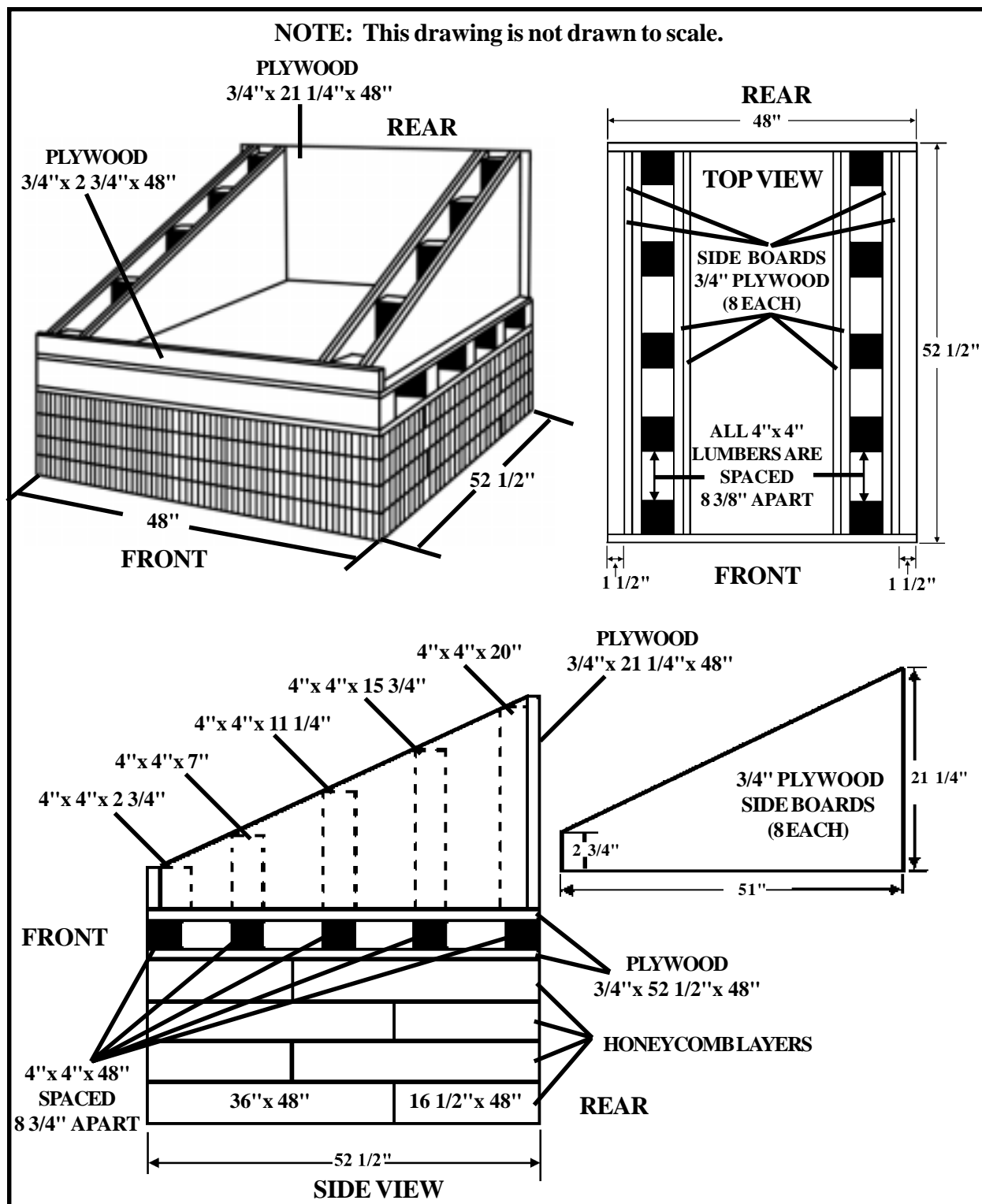
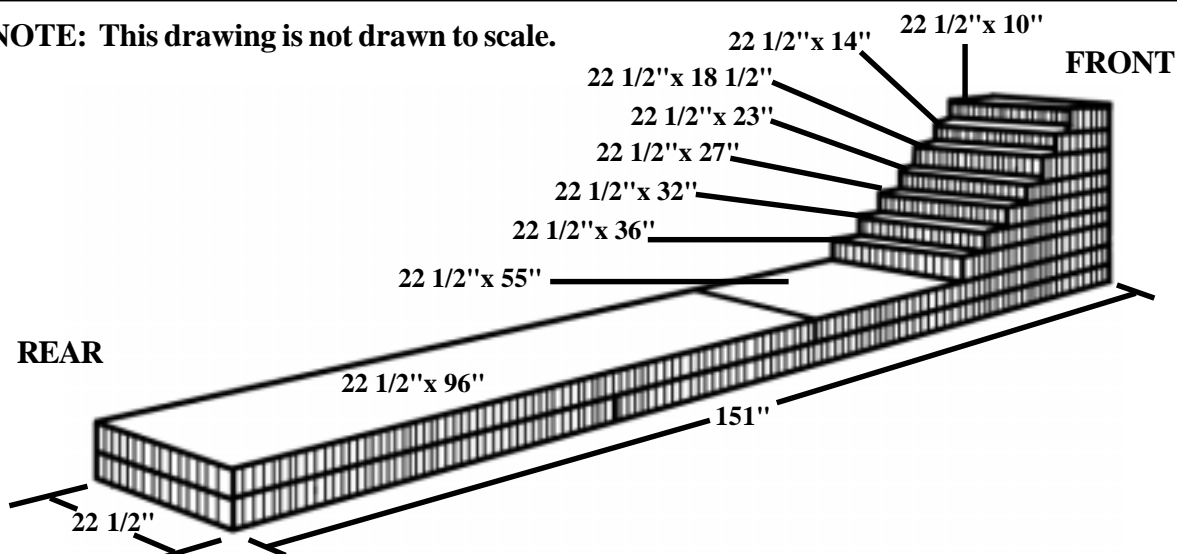


Figure 10-5. Stack 3 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
3	4	48	16 1/2	Honeycomb	Alternate and glue the 48" x 36" piece with the 48" x 16 1/2" piece to form a 48" x 52 1/2" base.
	4	48	36	Honeycomb	
	2	48	52 1/2	3/4" Plywood	Place and nail a 4" x 4" piece of lumber flush on each 48" side of a piece of plywood. Place and nail to the plywood the remaining three pieces of 4" x 4" lumber, 8 3/4" apart.
	5	48		4" x 4" Lumber	
	8	51	2 3/4 to 21 1/4	3/4" Plywood	Cut eight 3/4" plywood sideboards as shown in Figure 10-5.
	2		2 3/4	4" x 4" Lumber	Nail the 4" x 4" lumber to the sideboards using the dimensions shown in Figure 10-5. There are two layers of plywood on each side.
	2		7	4" x 4" Lumber	
	2		11 1/4	4" x 4" Lumber	
	2		15 3/4	4" x 4" Lumber	
	2		20	4" x 4" Lumber	
	1	48	21 1/4	3/4" Plywood	Nail to the sideboards and 4" x 4" lumber with a 1 1/2" overhang on each end.
	1	48	2 3/4	3/4" Plywood	Nail to the sideboards and 4" x 4" lumber with a 1 1/2" overhang on each end.
					Nail the remaining 48" x 52 1/2" piece of plywood to the sideboards and 4" x 4" lumber ensuring all sides are flush. Nail this assembly to the 3/4" plywood with five 4" x 4" pieces of lumber built above. Glue the wooden assembly to the 48" x 52 1/2" honeycomb base.

Figure 10-5. Stack 3 prepared (continued)

NOTE: This drawing is not drawn to scale.



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
4	2	22 1/2	96	Honeycomb	Alternate and glue the 22 1/2" x 96" piece with the 22 1/2" x 55" piece to form a 22 1/2" x 151" base.
	2	22 1/2	55	Honeycomb	
	1	22 1/2	36	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	32	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	27	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	23	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	18 1/2	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	14	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	10	Honeycomb	Glue on top, flush with front edge.
5	2	22 1/2	96	Honeycomb	Same as stack 4.
	2	22 1/2	55	Honeycomb	
	1	22 1/2	36	Honeycomb	
	1	22 1/2	32	Honeycomb	
	1	22 1/2	27	Honeycomb	
	1	22 1/2	23	Honeycomb	
	1	22 1/2	18 1/2	Honeycomb	
	1	22 1/2	14	Honeycomb	
	1	22 1/2	10	Honeycomb	

Figure 10-6. Stacks 4 and 5 prepared

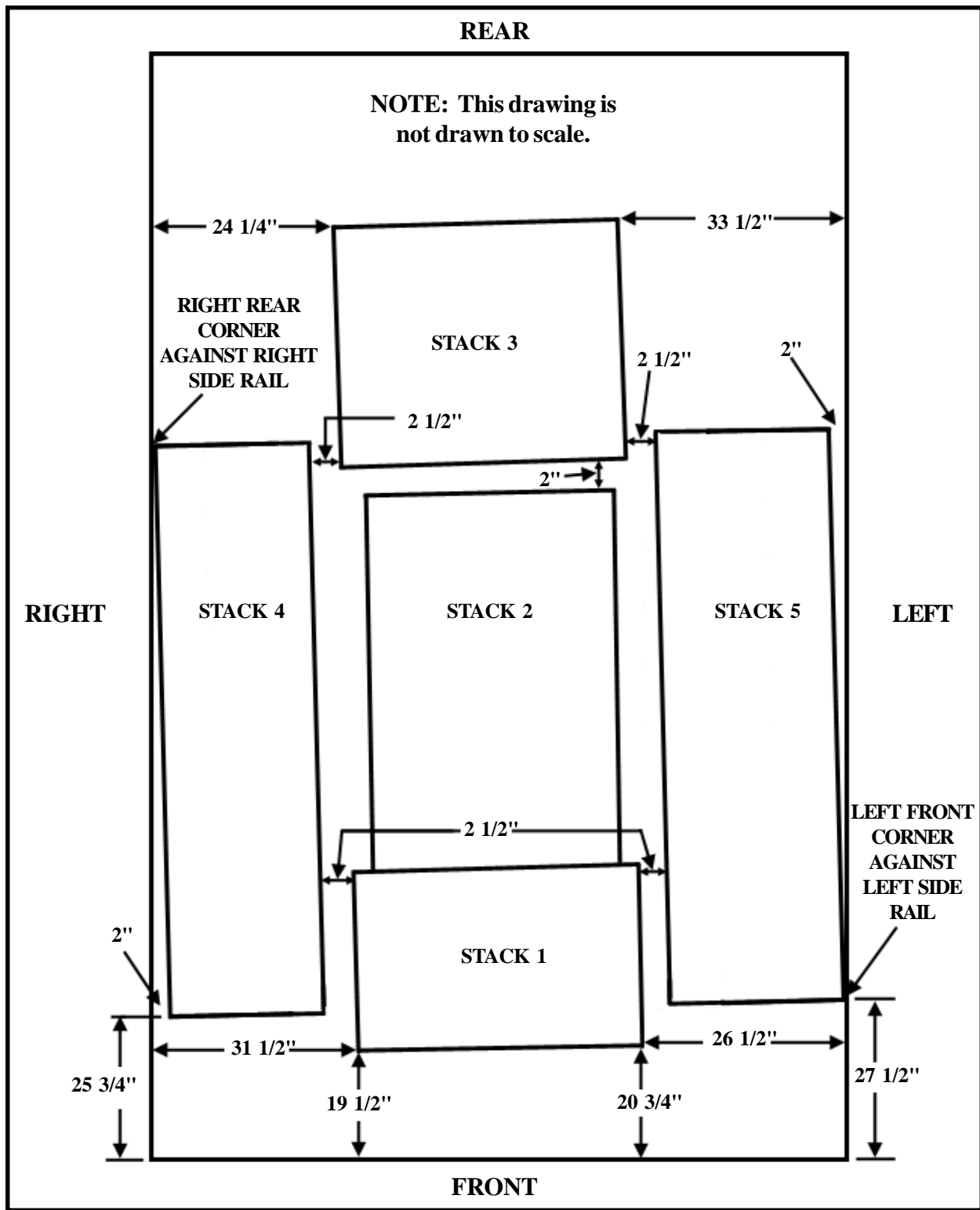


Figure 10-7. Honeycomb stacks positioned on platform

Step:

1. Position stack 1 with the right front corner 19 1/2 inches from the front edge of the platform and 31 1/2 inches from the right side rail. The left front corner is 20 3/4 inches from the front of the platform and 26 1/2 inches from the left side rail.
2. Position stack 2 centered on and flush with stack 1 maintaining the same angle as stack 1.
3. Position stack 3 with the front edge 2 inches from the rear edge of stack 2. The right rear corner is 24 1/2 inches from the right side rail and the left rear corner is 33 1/2 inches from the left side rail.
4. Position stack 4 with the right front corner 25 3/4 inches from the front edge of the platform and the right rear corner against the right side rail. Maintain the same angle as stacks 1 and 2.
5. Position stack 5 with the left front corner 27 1/2 inches from the front edge of the platform and against the left side rail. Maintain the same angle as stacks 1 and 2.

Figure 10-7. Honeycomb stacks positioned on platform (continued)

10-4. Preparing the DEUCE

Prepare the DEUCE as described below.

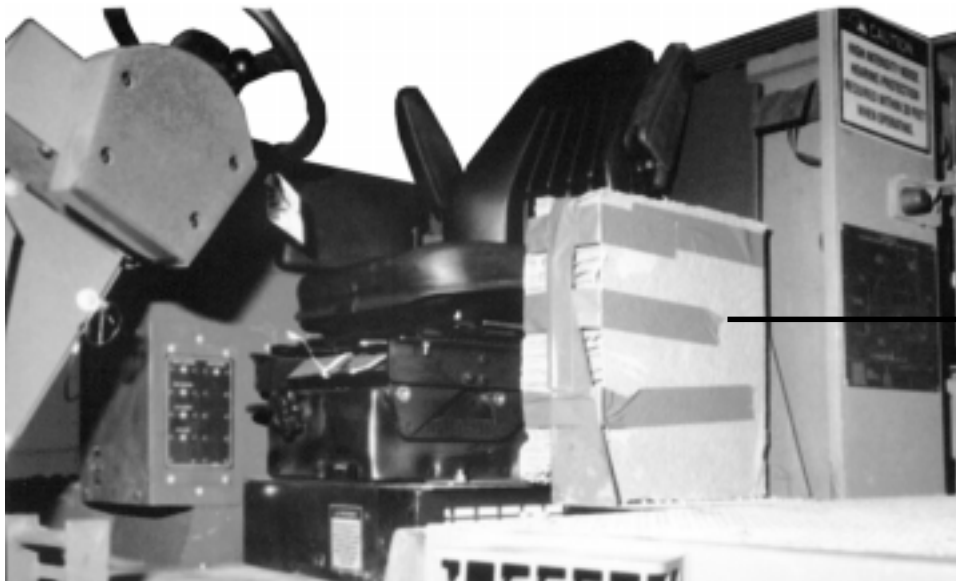
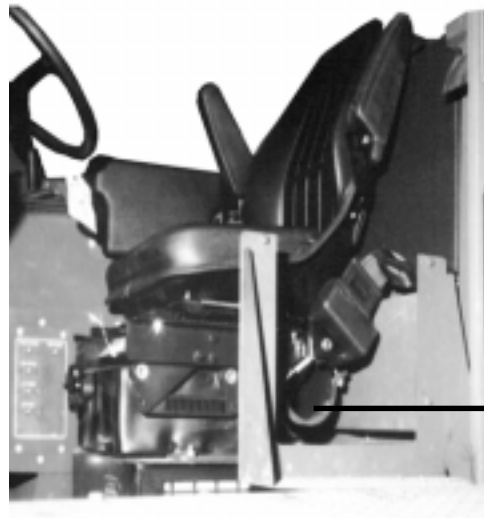
a. Check the fuel level. Ensure the fuel tank is not more than 3/4 full.

b. Prepare the DEUCE.

(1) Remove the cab.

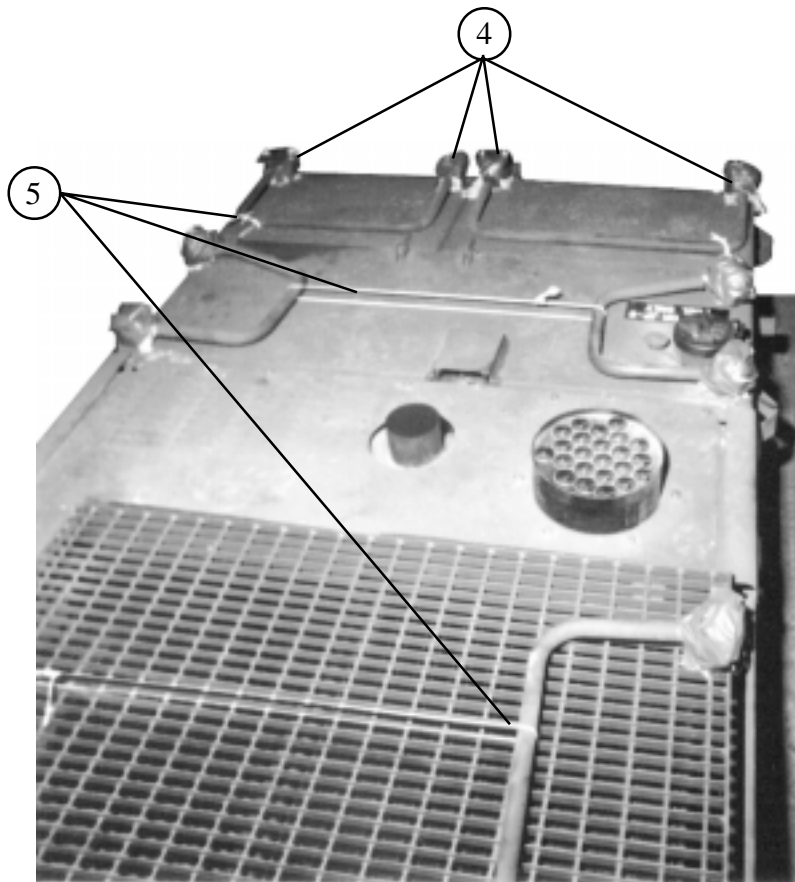
(2) Prepare the DEUCE as shown in Figure 10-8.

Note: The owning unit must provide maintenance personnel/operators to remove components at the rigging site.



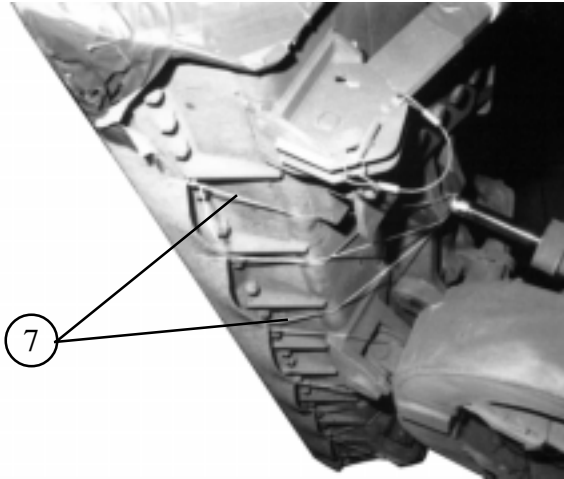
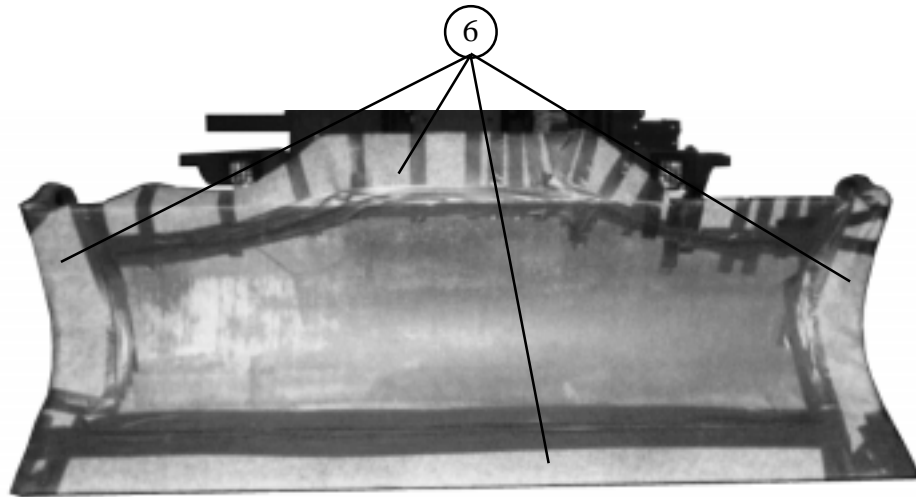
- ① Tape all lights and reflectors (not shown).
- ② Remove the exhaust stack and place behind the seat. Leave all clamps with the stack. Secure the exhaust stack with type III nylon cord.
- ③ Cut two 14" x 16" pieces of honeycomb . Place one piece on each side of the radio mount and secure the honeycomb with tape.

Figure 10-8. DEUCE prepared



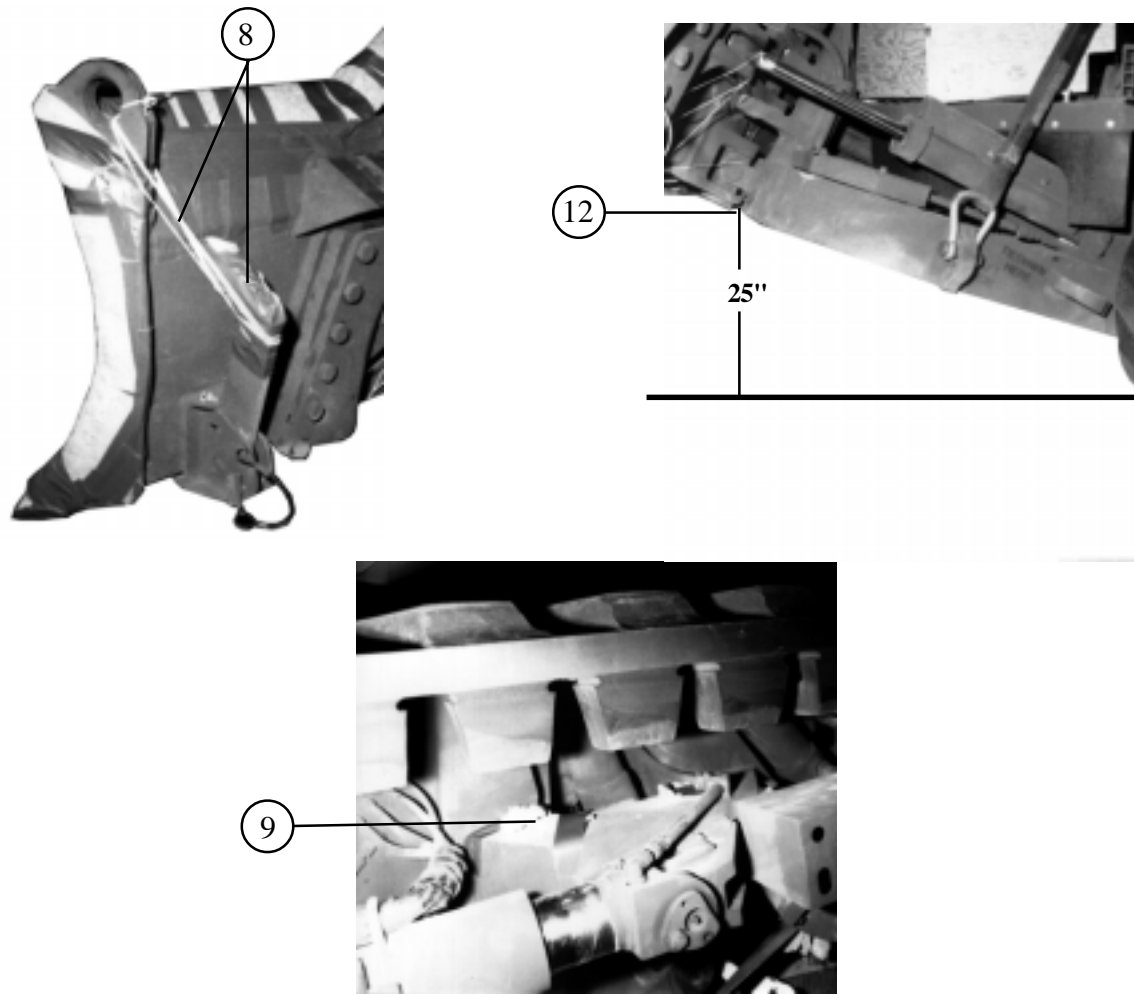
- ④ Pad all brackets on the engine compartment with cellulose padding. Secure the padding with tape.
- ⑤ Safety tie the grab rails together or to the body with type III nylon cord.

Figure 10-8. DEUCE prepared (continued)



- ⑥ Pad the blade edges with 1/2 inch thick felt . Secure the felt padding with tape.
- ⑦ Make holes in the bottom piece of felt and secure to points on the frame with type III nylon cord.

Figure 10-8. DEUCE prepared (continued)

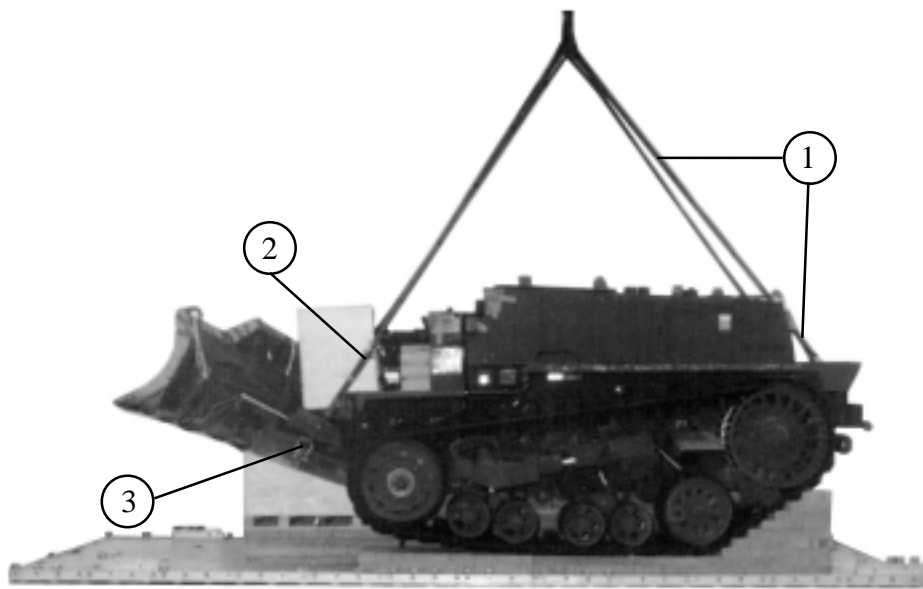


- (8) Pin the blade back rippers in the upright position. Pad the blade back rippers with 1/2 inch thick felt and secure with tape. Safety tie the rippers with type III nylon cord.
- (9) Pad all rough or sharp lashing point edges with cellulose padding and secure with tape.
- (10) Tie the winch hook to the pintle with type III nylon cord (not shown).
- (11) Raise the blade to it's limit. Level, and angle the blade all the way to the right (not shown).
- (12) Kneel the DEUCE until the front bottom center of the C-frame is 25 inches above the ground.

Figure 10-8. DEUCE prepared (continued)

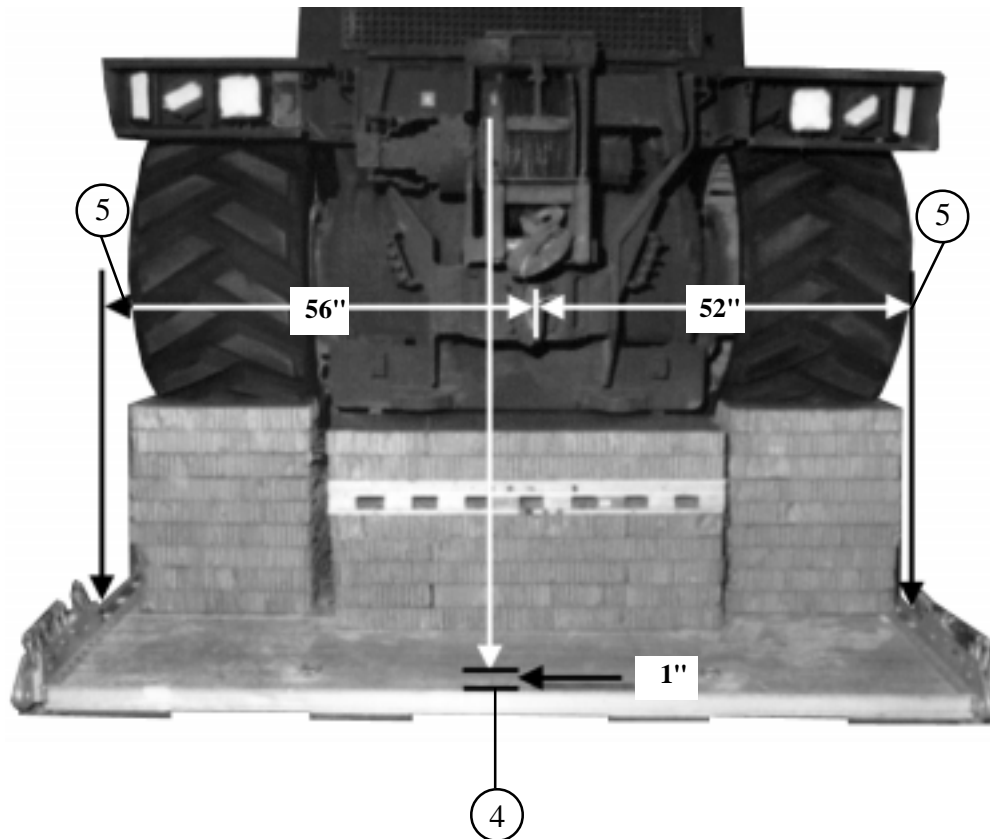
10-5. Lifting and Positioning the DEUCE

Lift and position the DEUCE as shown in Figure 10-9.



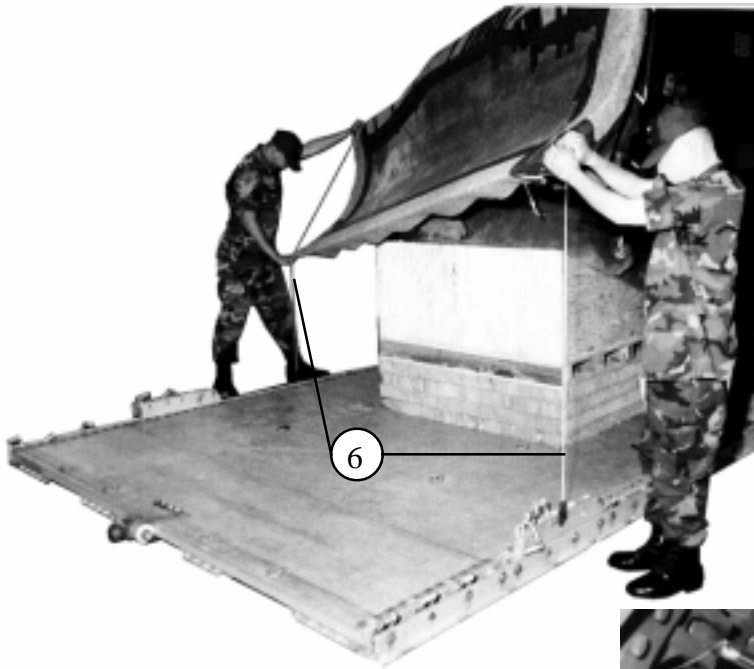
- ① Attach a 12-foot (4-loop), type XXVI nylon sling to each lift point on the rear of the vehicle with a screw pin clevis.
- ② Form the front lift slings by connecting a 3-foot (4-loop), type XXVI nylon sling to an 11-foot (4-loop), type XXVI nylon sling with a 5 1/2-inch link .
- ③ Attach the front lift slings to the front lift points with large clevises.

Figure 10-9. DEUCE lifted and positioned on platform

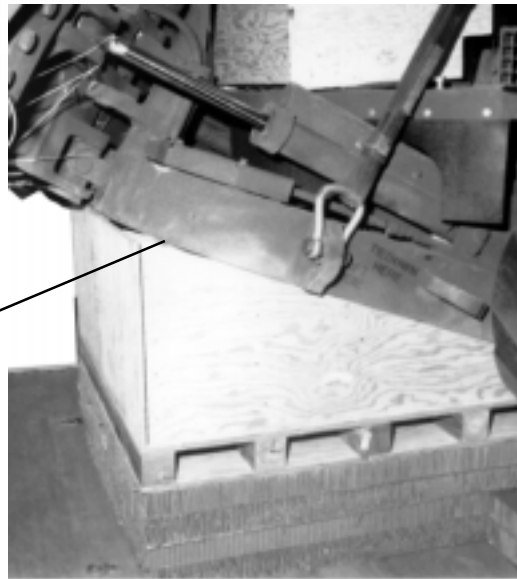


- ④ Position the rear edge of the winch roller 1-inch back from the front edge of the platform.
- ⑤ Align the center of the pintle 52-inches from the outside edge of the left side rail and 56-inches from the outside edge of the right side rail.

Figure 10-9. DEUCE lifted and positioned on platform (continued)

**CAUTION**

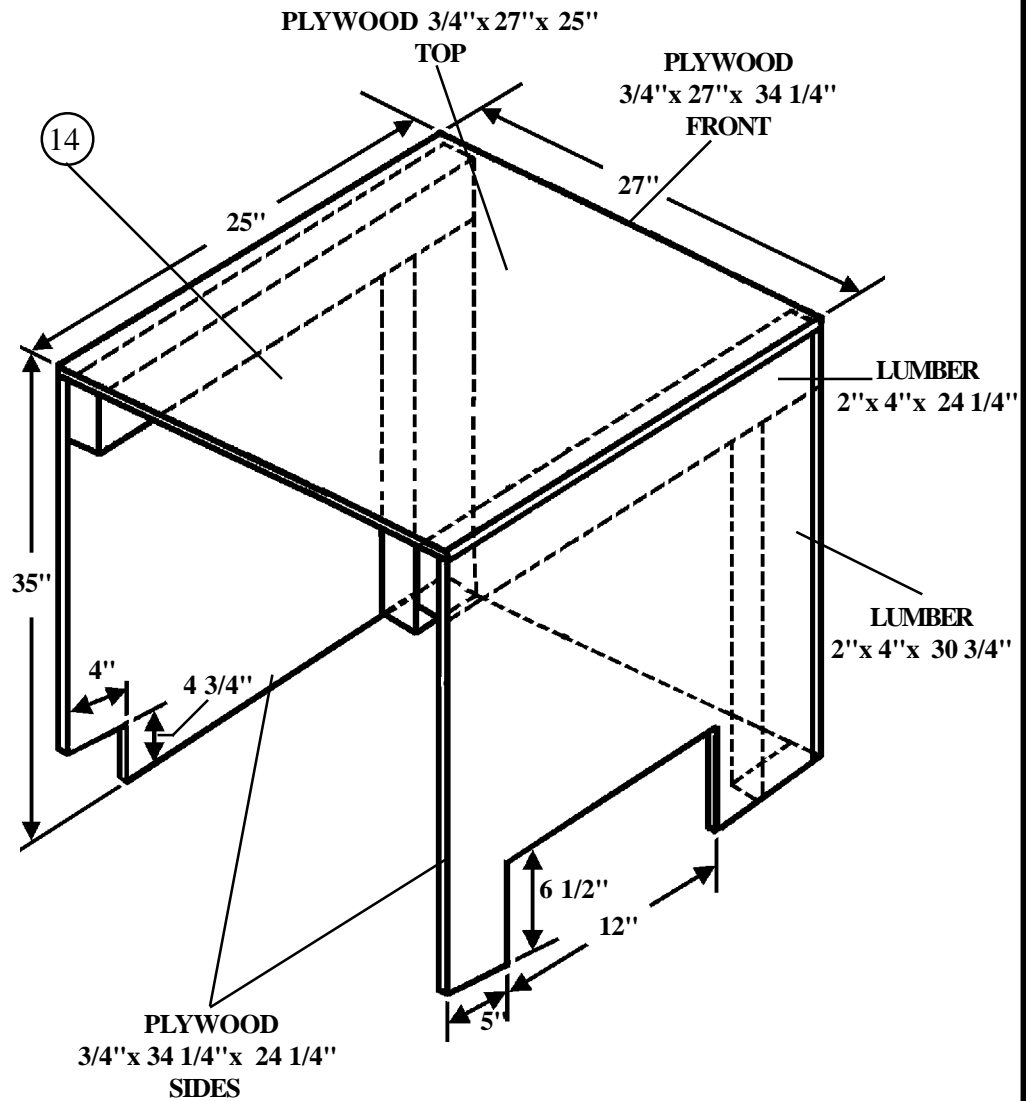
The blade overhang on each side must not exceed 1 inch beyond the platform.



- ⑥ Position two plumb bobs, one on each outside bottom point of the blade. Ensure the outside points do not extend more than 1-inch beyond the outside edge of the side rails.
- ⑦ Ensure the blade C-frame sits squarely on honeycomb stack 3.

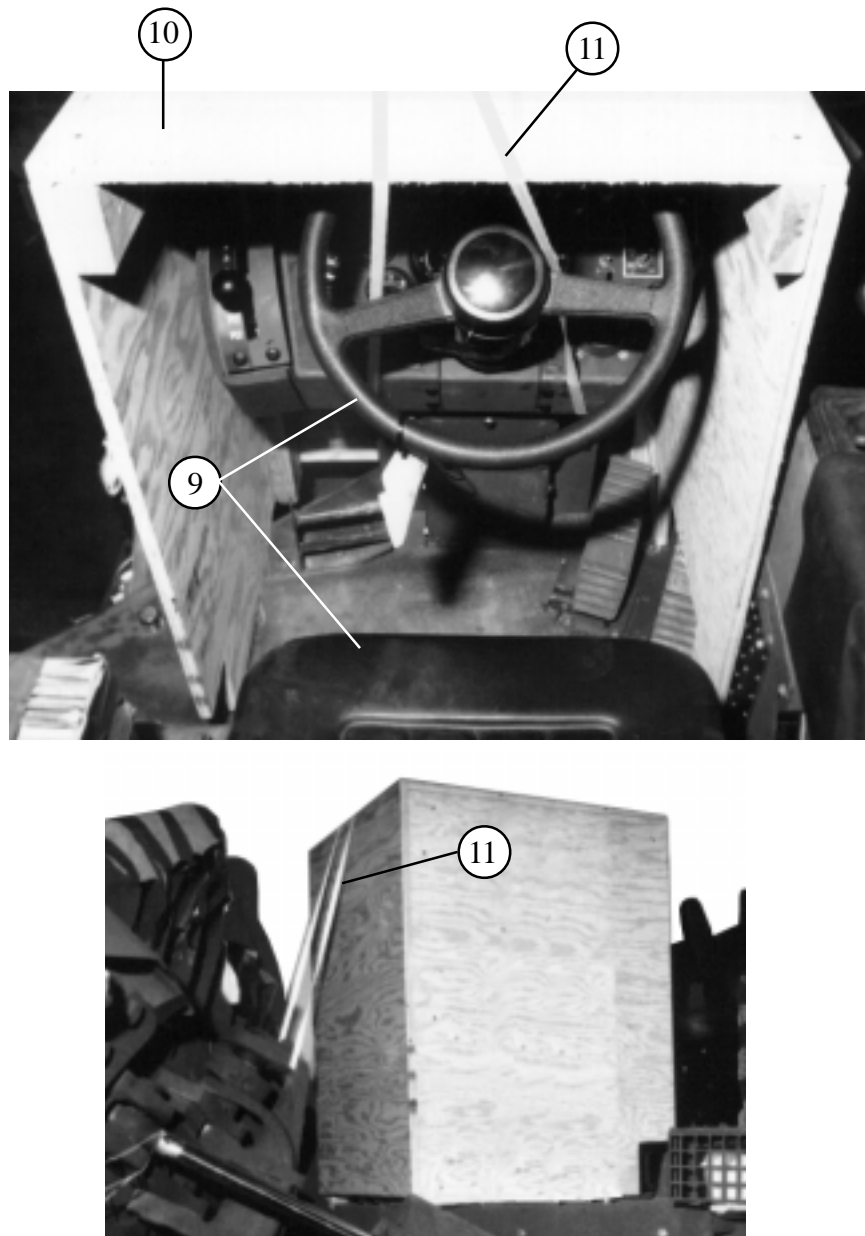
Figure 10-9. DEUCE lifted and positioned on platform (continued)

NOTE: This drawing is not drawn to scale.



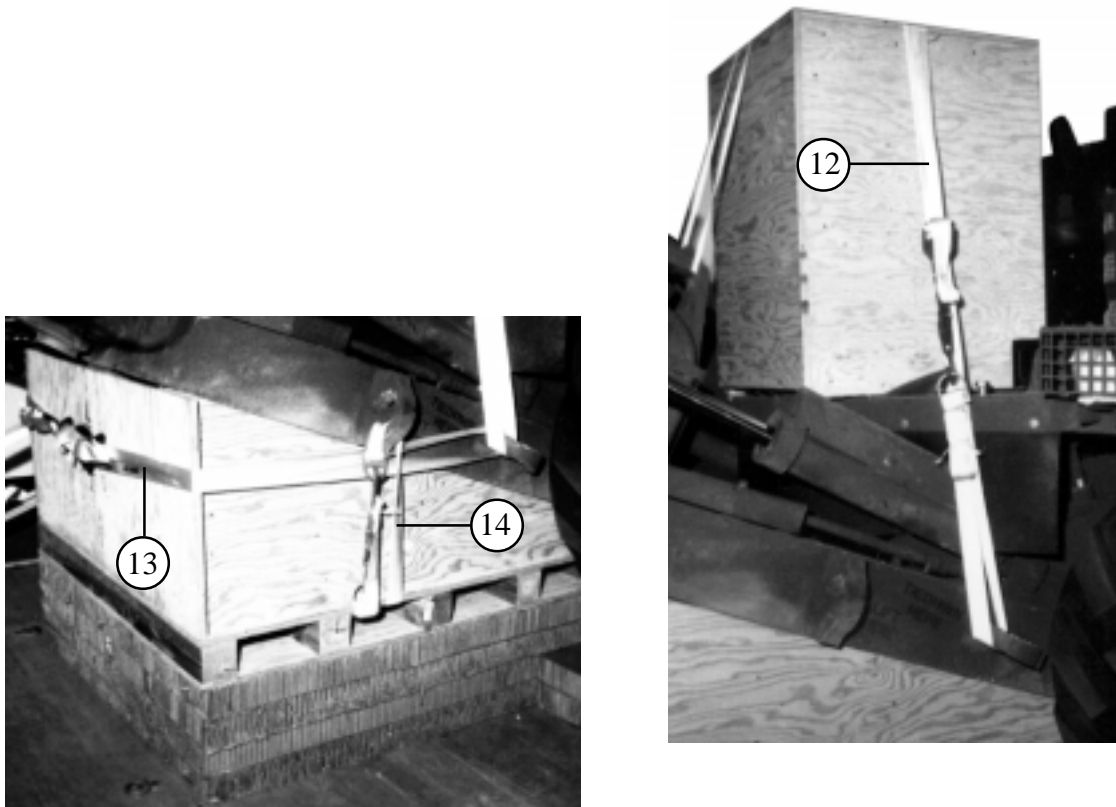
- 8 Construct and nail a box according to the diagram shown above.

Figure 10-9. DEUCE lifted and positioned on platform (continued)



- ⑨ Tilt and lock the steering wheel and compress the seat in the down position.
- ⑩ Place the box over the steering wheel and column.
- ⑪ Secure the box with 1/2-inch tubular nylon routed around the steering wheel column, over the box, and tied to the blade pivot point.

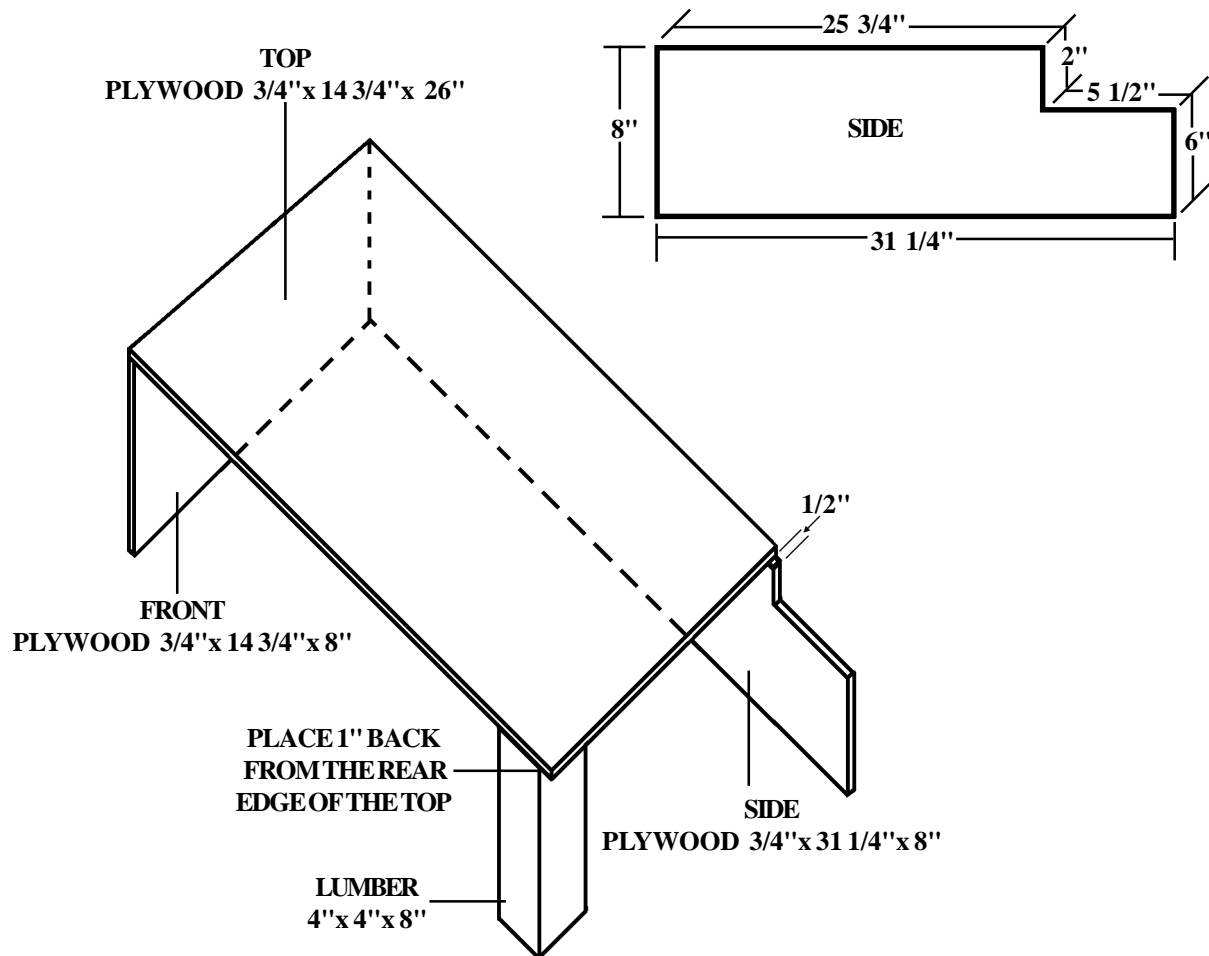
Figure 10-9. DEUCE lifted and positioned on platform (continued)



- ⑫ Route a 30-foot lashing through the right C-frame tiedown, over the steering column box, down through the left C-frame tiedown, and back over the steering column box. Close the load binder on the right side of the steering column box.
- ⑬ Route a 30-foot lashing through the right C-frame tiedown point, around the rear of stack 3, through the left C-frame tiedown point, and back around the rear of stack 3. Close the load binder on the rear of stack 3.
- ⑭ Route a lashing through the right C-frame lift point, through the third hole from the front of honeycomb stack 3, through the left C-frame lift point, and back through the third hole of honeycomb stack 3. Close the load binder on the right side of stack 3.

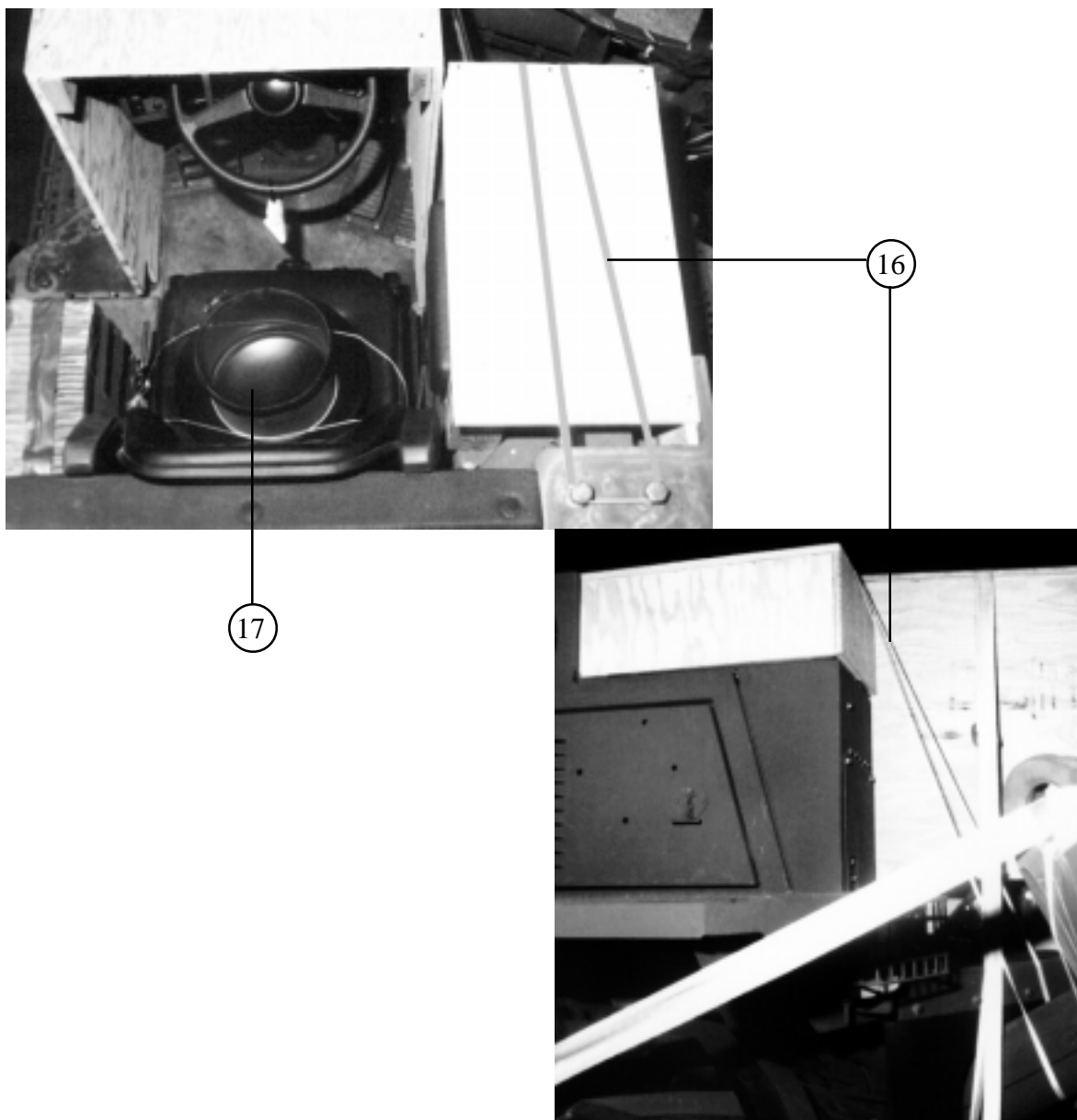
Figure 10-9. DEUCE lifted and positioned on platform (continued)

NOTE: This drawing is not drawn to scale.



- 15 Construct and nail the blade control lever box as shown above.

Figure 10-9. DEUCE lifted and positioned on platform (continued)



- (16) Place the blade control lever box over the blade control lever and secure it with 1/2-inch tubular nylon webbing to convenient points on the load.
- (17) Remove the air intake stack and secure it on the seat with type III nylon cord.

Figure 10-9. DEUCE lifted and positioned on platform (continued)

10-6. Lashing Load to Platform

Lash the DEUCE to the platform as shown in Figure 10-10.

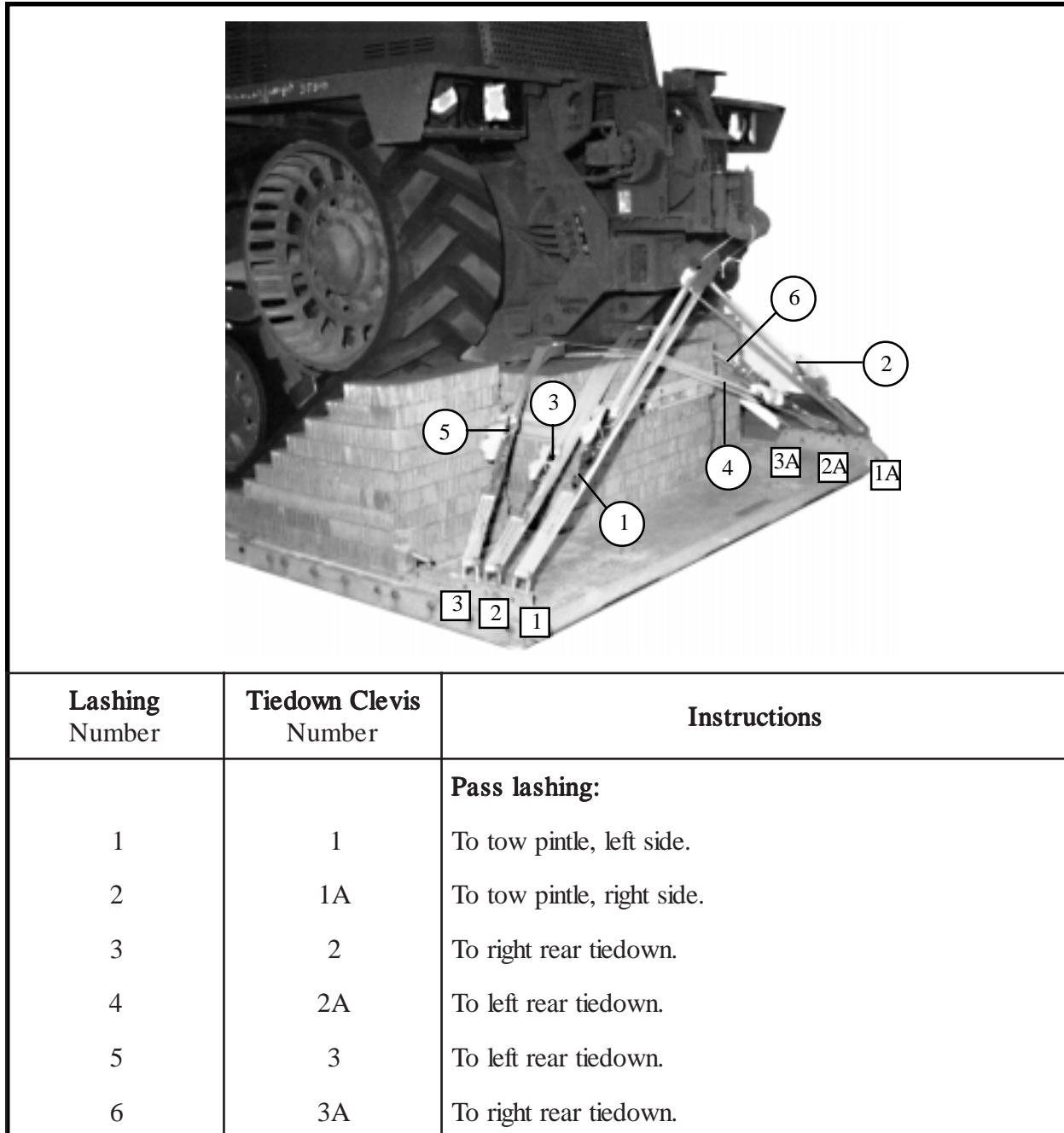
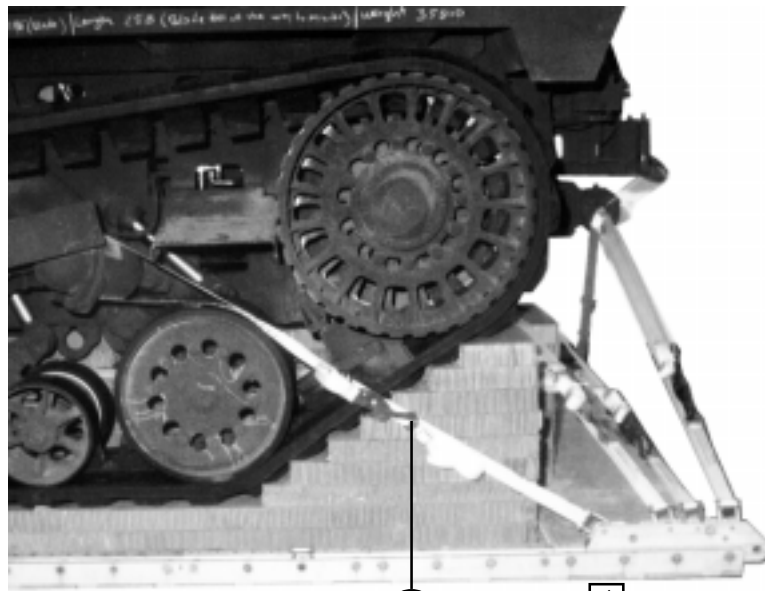


Figure 10-10. DEUCE lashed to platform

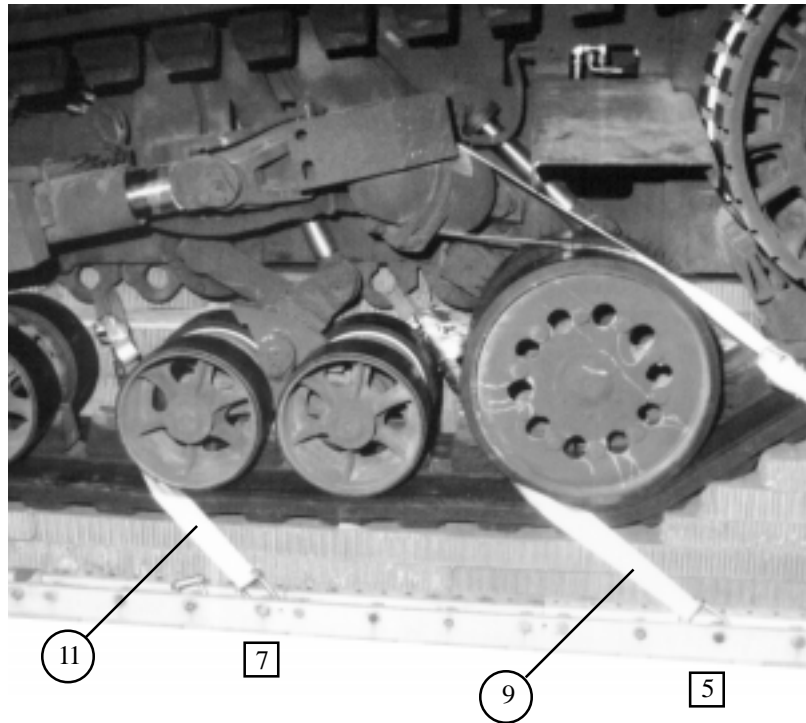


NOTE: Ensure the lashings are routed under all hoses.



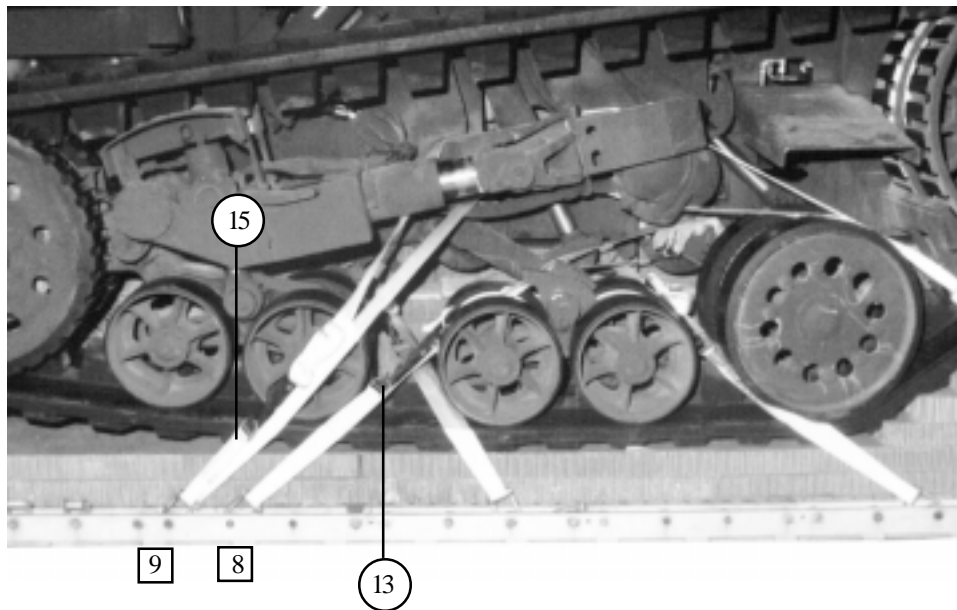
Lashing Number	Tiedown Clevis Number	Instructions
7	4	Route a 30-foot lashing over the left rear idler wheel, through the left rear portion of the recoil cylinder mount.
8	4A	Route a 30-foot lashing over the right rear idler wheel, through the right rear portion of the recoil cylinder mount.

Figure 10-10. DEUCE lashed to platform (continued)



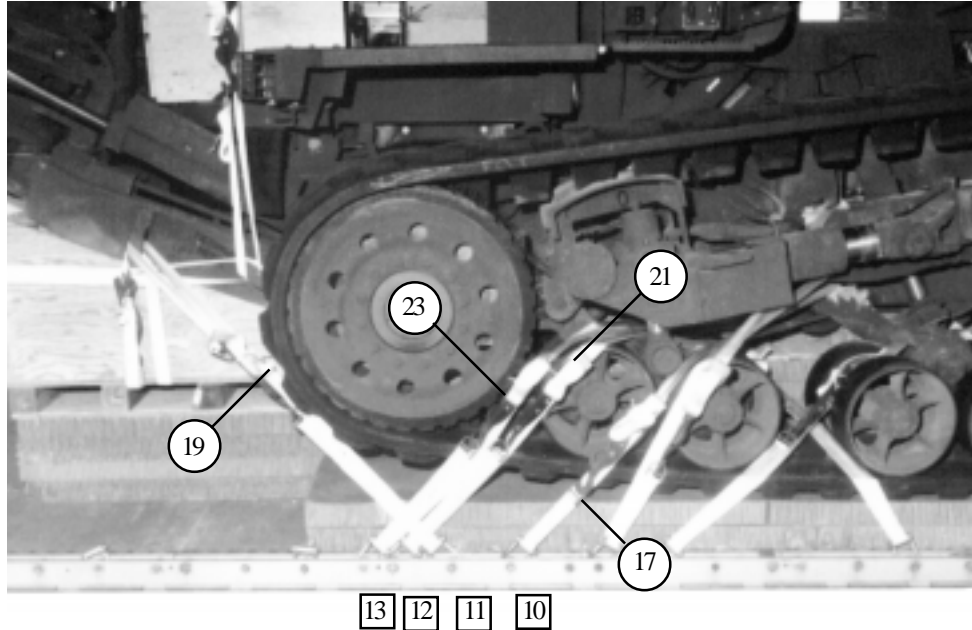
Lashing Number	Tiedown Clevis Number	Instructions
9	5	Pass lashing: To rear frame tiedown, left side. To rear frame tiedown, right side. To front frame tiedown, left side. To front frame tiedown, right side.
10	5A	
11	7	
12	7A	

Figure 10-10. DEUCE lashed to platform (continued)



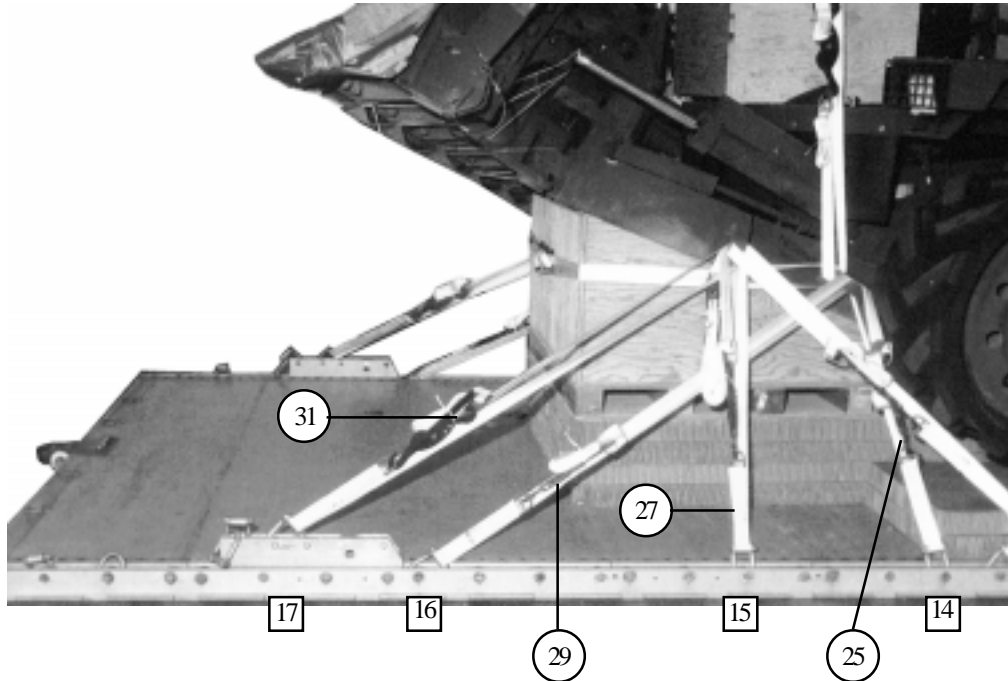
Lashing Number	Tiedown Clevis Number	Instructions
13	8	Pass Lashing: To rear axle mount, left side.
14	8A	To rear axle mount, right side.
15	9	To front portion of the recoil cylinder mount, left side.
16	9A	To front portion of the recoil cylinder mount, right side.

Figure 10-10. DEUCE lashed to platform (continued)



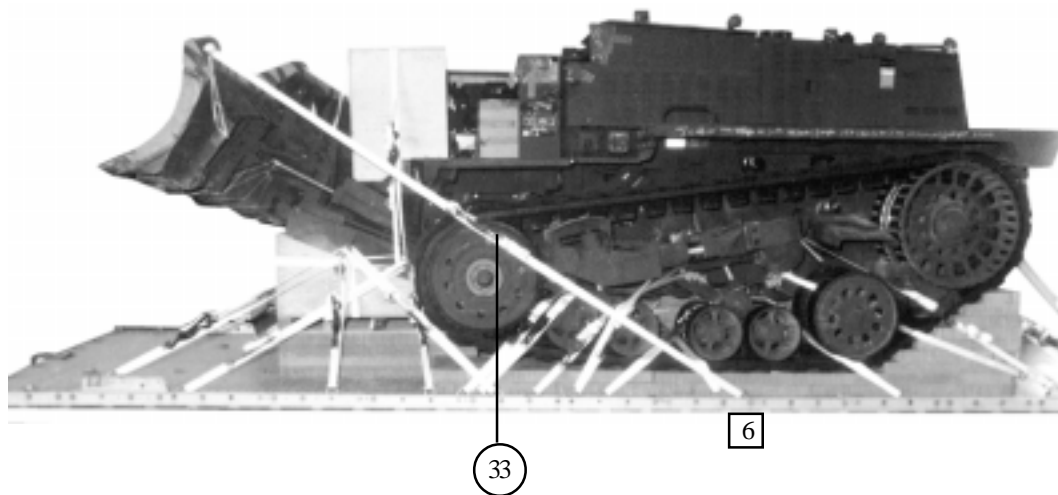
Lashing Number	Tiedown Clevis Number	Instructions
17	10	Pass lashing: To center axle mount, left side. To center axle mount, right side. To C-frame lift point, left side. To C-frame lift point, right side. To center frame tiedown, left side. To center frame tiedown, right side. To front frame tiedown, left side. To front frame tiedown, right side.
18	10A	
19	11	
20	11A	
21	12	
22	12A	
23	13	
24	13A	

Figure 10-10. DEUCE lashed to platform (continued)



Lashing Number	Tiedown Clevis Number	Instructions
		Pass lashing:
25	14	To C-frame tiedown, left side.
26	14A	To C-frame tiedown, right side.
27	15	To C-frame lift point, left side.
28	15A	To C-frame lift point, right side.
29	16	To C-frame tiedown, left side
30	16A	To C-frame tiedown, right side.
31	17	To C-frame lift point, left side.
32	17A	To C-frame lift point, right side.

Figure 10-10. DEUCE lashed to platform (continued)



Lashing Number	Tiedown Clevis Number	Instructions
33	6	Route a 30-foot lashing to the blade lift point, left side.
34	6A	Route a 30-foot lashing to the blade lift point, right side.

Figure 10-10. DEUCE lashed to platform (continued)

10-7. Installing the Rear Step Box and Load Cover

Install the rear step box and load cover as shown in Figure 10-11.

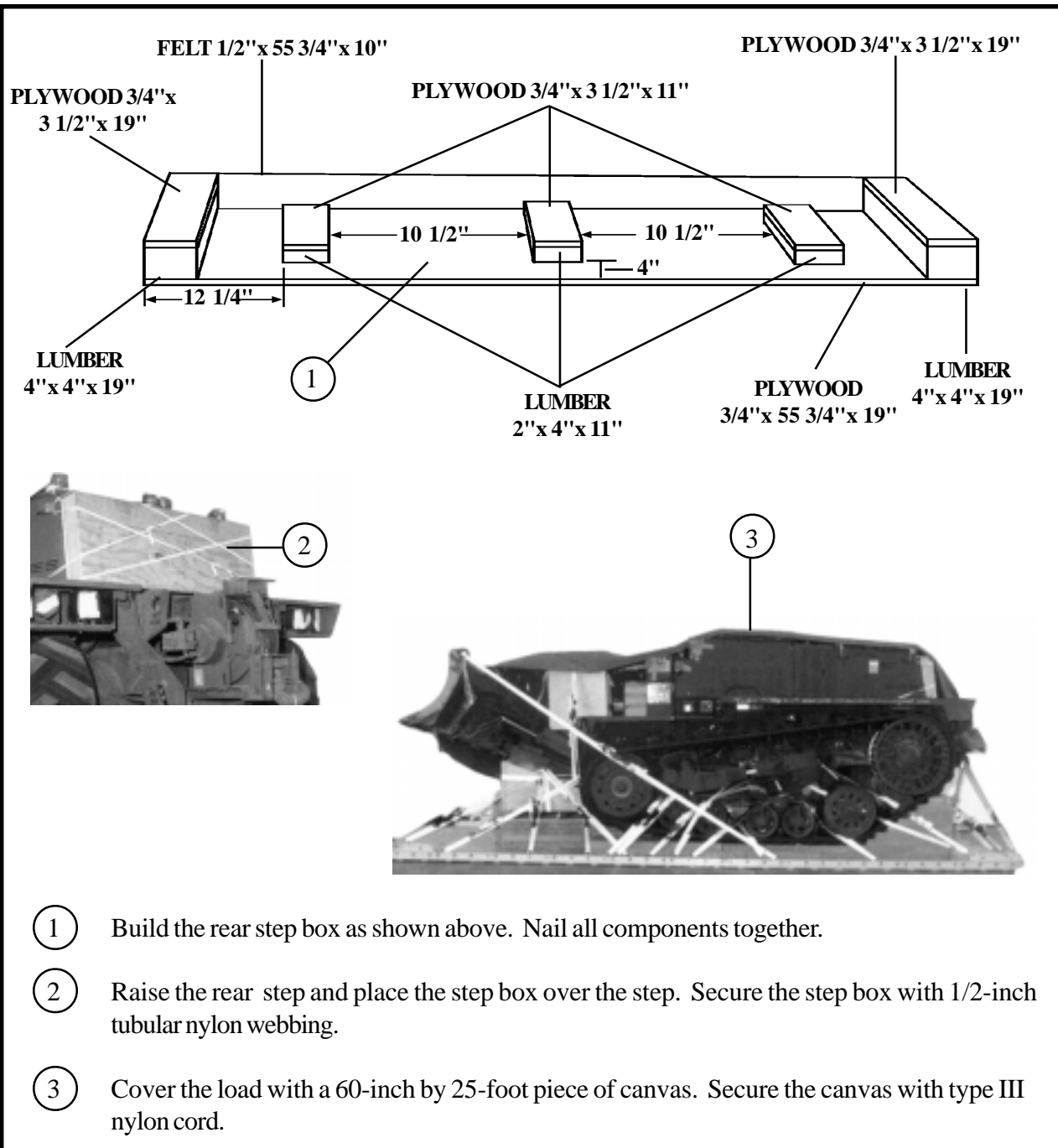
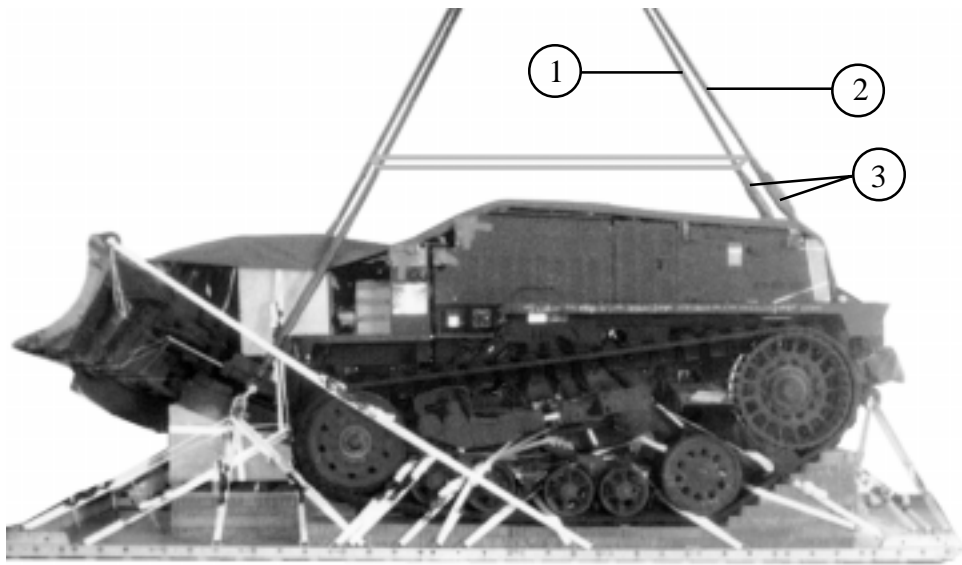


Figure 10-11. Rear step box placed and load covered

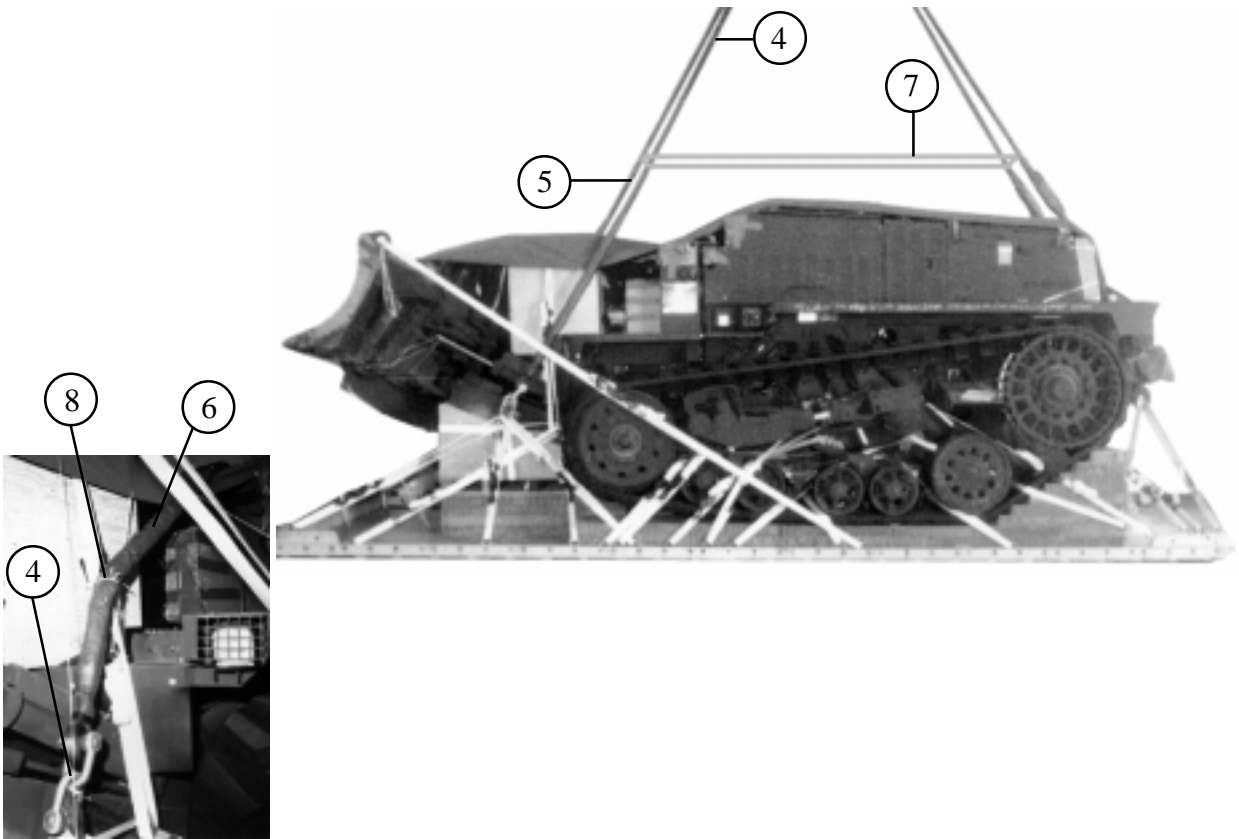
10-8. Installing Suspension Slings and Deadman's Tie

Install the suspension slings and deadman's tie as shown in Figure 10-12.



- ① Make the left front suspension sling by connecting an 11-foot (4-loop), type XXVI nylon suspension sling to a 3-foot (4-loop), type XXVI nylon suspension sling with a 5 1/2-inch link. Route a 9 1/2-ton screw pin clevis through the end of the 3-foot suspension sling and attach the clevis to the right rear lift point on the DEUCE.
- ② Repeat the procedures in step 1 for the right front suspension sling and attach it to the left rear lift point on the DEUCE.
- ③ Pad the 5 1/2-inch links with 1/2-inch felt padding. Secure the padding with tape.

Figure 10-12. Suspension slings and deadman's tie installed



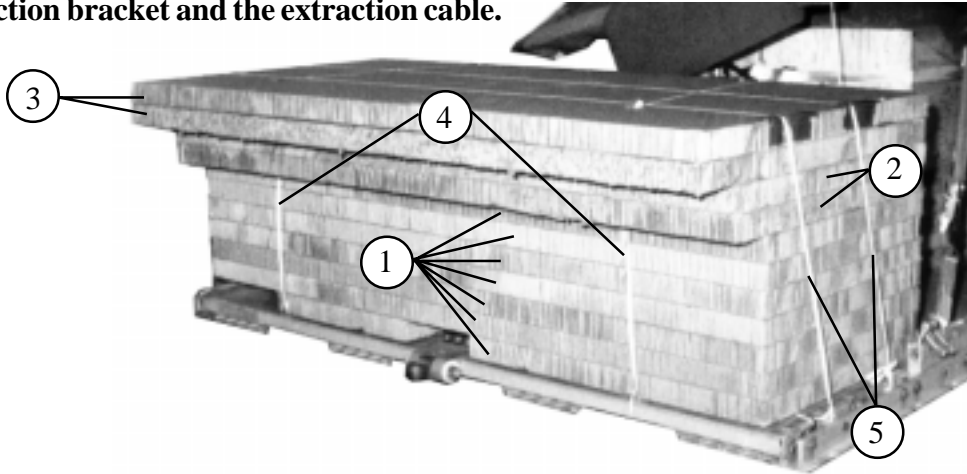
- ④ Make the right rear suspension sling by attaching a 9 1/2-ton screw pin clevis to the left C-frame lift point. Route a second 9 1/2-ton screw pin clevis through the bell portion of the first clevis and attach a 16-foot (4-loop), type XXVI nylon suspension sling.
- ⑤ Repeat the procedures in step 4 for the left rear suspension sling and attach it to the right C-frame lift provision.
- ⑥ Pad the rear suspension slings with 1/2-inch felt padding from the 9 1/2-ton screw pin clevises to a point 5-inches above the steering column box. Secure the padding with tape.
- ⑦ Raise the slings and install the deadman's tie according to FM 10-500-2/TO 13C7-1-5.
- ⑧ Safety tie each rear suspension sling to the lashing securing the steering column box with one turn of type I, 1/4-inch cotton webbing.

Figure 10-12. Suspension slings and deadman's tie installed (continued)

10-9. Building and Positioning Parachute Stowage Platform

Build and position the parachute stowage platform as shown in Figure 10-13.

NOTE: Cut channels in the bottom layer for the extraction bracket and the extraction cable.



- ① Glue seven pieces of 96-inch by 36-inch honeycomb together to form a base. Center the base 2-inches forward of the rear edge of the platform. Cut channels in the bottom layer for the extraction bracket and the extraction cable.
- ② Cut two pieces of 96-inch by 5-inch honeycomb and two pieces of 96-inch by 36-inch honeycomb. Position and glue the pieces on top of the honeycomb base, flush with the front of the base, forming two 96-inch by 41-inch layers.
- ③ Cut two pieces of 96-inch by 11-inch honeycomb and two pieces of 96-inch by 36-inch honeycomb. Position and glue the pieces on top of the 96-inch by 41-inch layers, flush with the front of the base, forming two 96-inch by 47-inch layers.
- ④ Make a hole through the top four layers of honeycomb directly above deck rings 12A and 12D. Tie one end of a length of 1/2-inch tubular nylon webbing to deck ring 11A. Route the running end over the top of the stowage platform, down through the hole and secure the webbing to deck ring 12A. Repeat the procedure with a second length of 1/2-inch tubular nylon webbing using deck rings 11B and 12D. Tape the edges of the holes and the front edge of the top layer of honeycomb.
- ⑤ Tape the side edges of the top layer of honeycomb. Route a length of 1/2-inch tubular nylon webbing from bushing 45 over the top of the platform and secure on bushing 45A. Repeat the procedure with another length of 1/2-inch tubular nylon and bushings 47 and 47A.

Figure 10-13. Parachute stowage platform built and positioned

10-10. Preparing and Stowing Cargo Parachutes

Install the extraction system as shown in Figure 10-14.

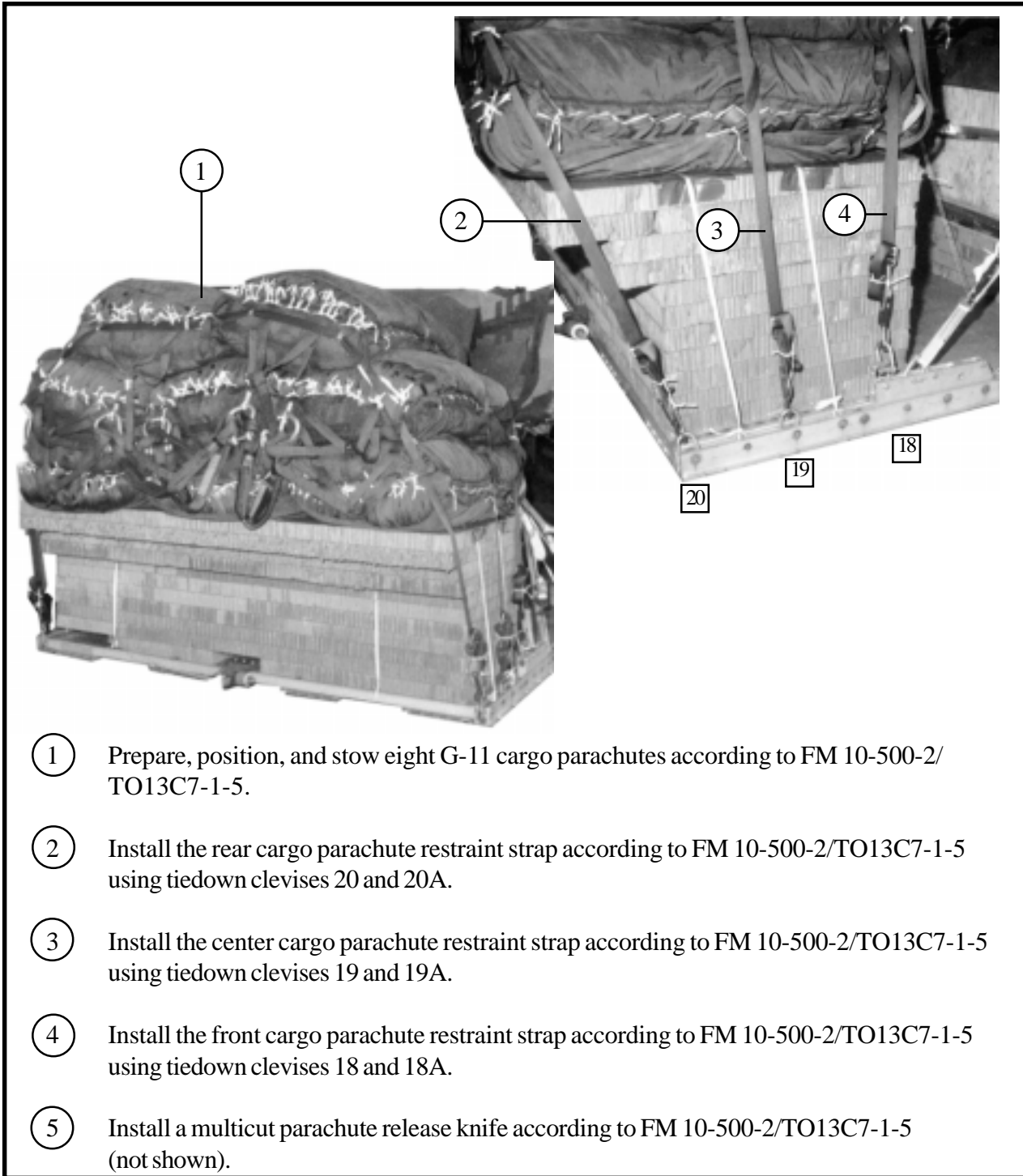
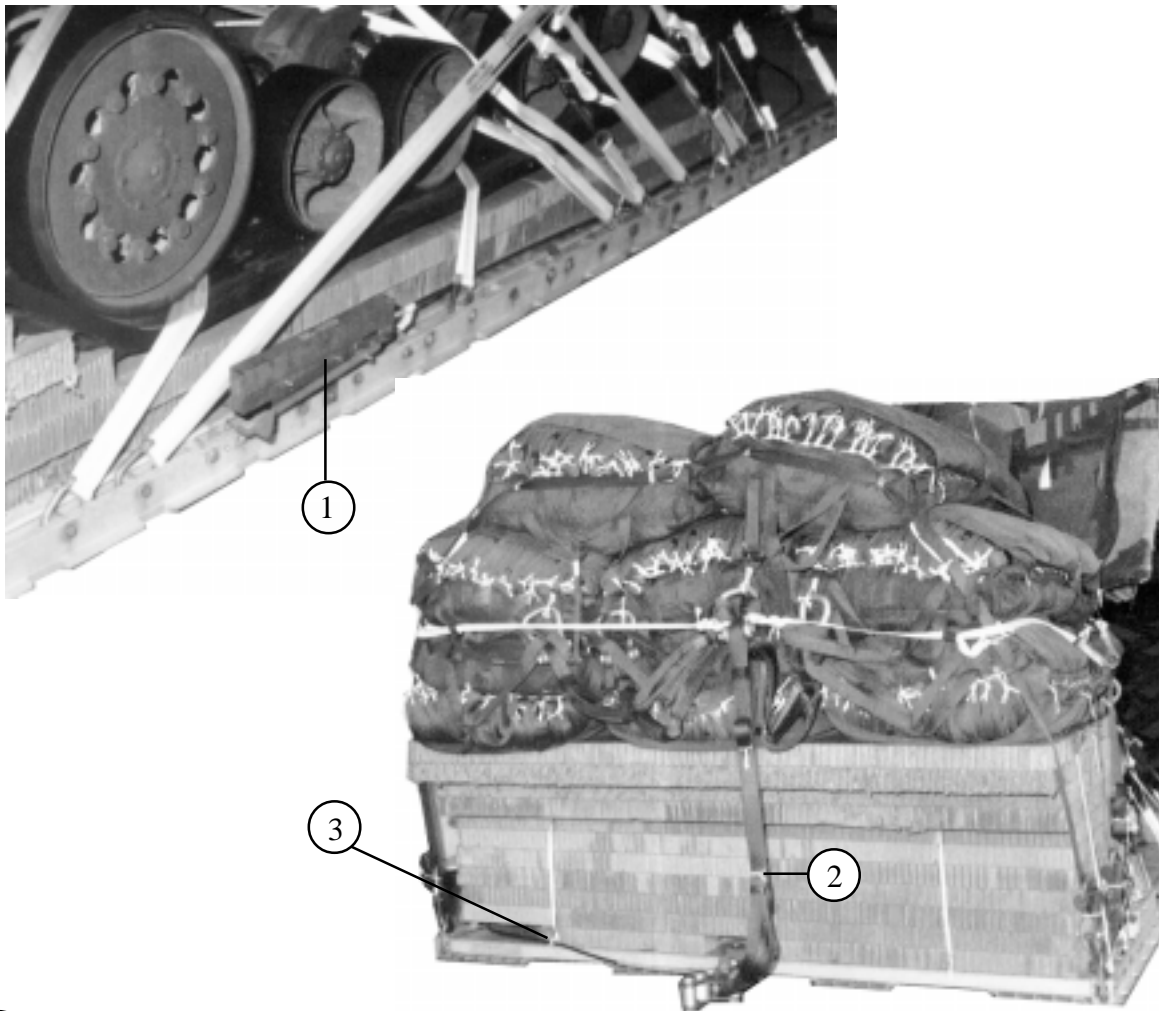


Figure 10-14. Cargo parachutes prepared and stowed

10-11. Installing Extraction System

Prepare and stow eight G-11 cargo parachutes as shown in Figure 10-15.



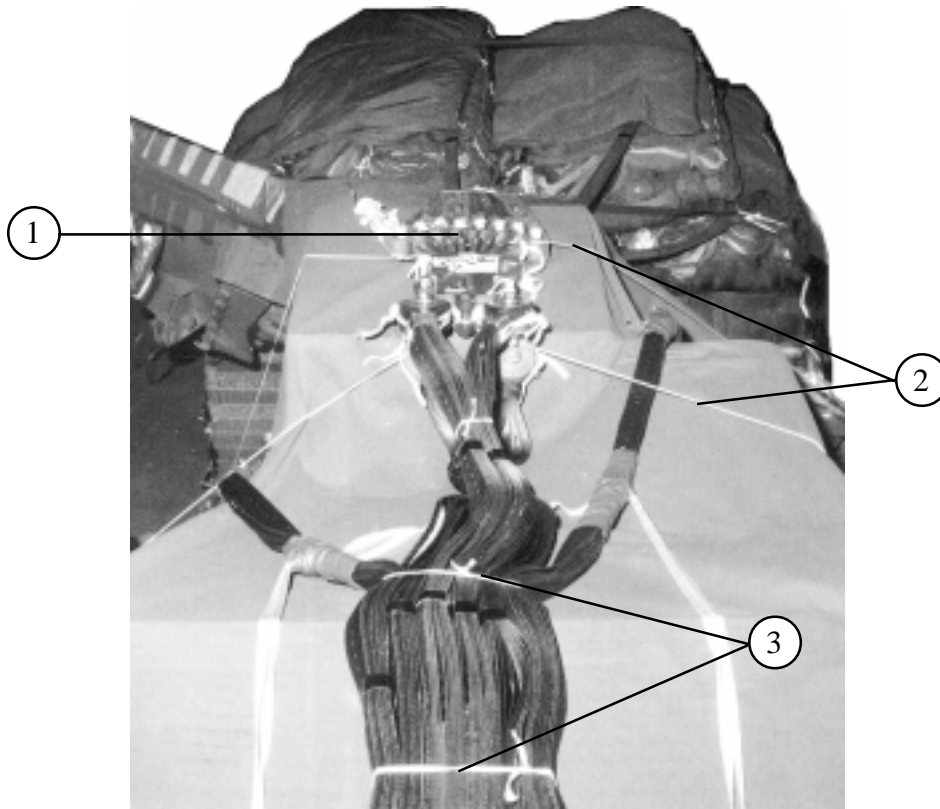
- ① Install the components of the EFTC according to FM 10-500-2/TO13C7-1-5. Use the rear mounting holes for the EFTC brackets.
- ② Attach a 9-foot (2-loop) type XXVI nylon sling to be used as a deployment line.
- ③ Use a 20-foot EFTC cable and safety the cable to convenient places on the platform with one turn of type I, 1/4-inch cotton webbing.

Figure 10-15. Extraction system installed

10-12. Installing Parachute Release

chute release according to FM 10-500-2/
TO 13C7-1-5 and as shown in Figure 10-16.

Prepare, attach, and safety an M-2 cargo para-



- ① Place the M-2 cargo parachute release on top of the steering column box and attach the suspension slings and riser extensions.
- ② Safety the top and bottom of the release to convenient places on the load with type III nylon cord according to FM 10-500-2/TO 13C7-1-5.
- ③ S-fold and tie any excess suspension slings with one turn of type I, 1/4-inch cotton webbing.

Figure 10-16. M-2 cargo parachute release installed

10-13. Placing Extraction Parachute

Select the extraction parachute and extraction line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction parachute and extraction line on the load for installation in the aircraft.

10-14. Installing Provisions for Emergency Restraint

Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in FM 10-500-2/TO 13C7-1-5.

10-15. Marking Rigged Load

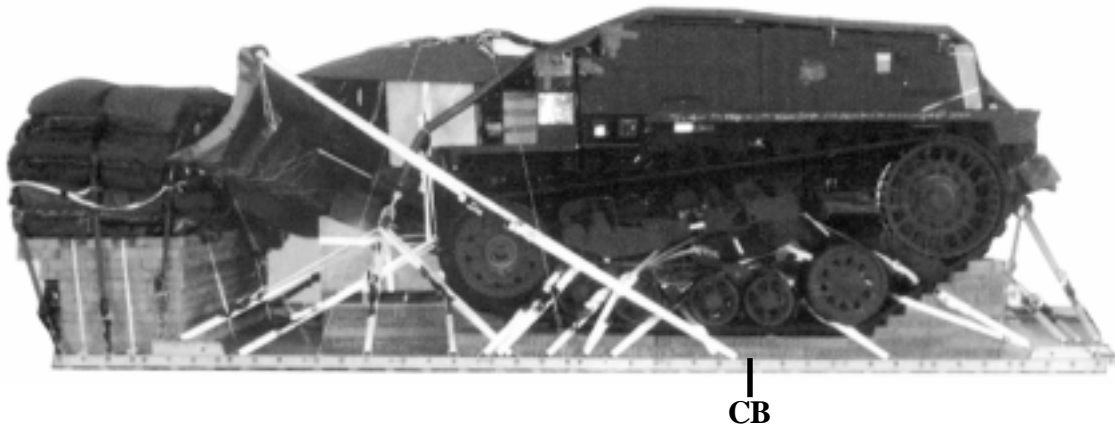
Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 10-17. Complete Shipper's Declaration for Dangerous Goods and affix to the load. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed.

10-16. Equipment Required

Use the equipment list in Table 10-1 to rig the load shown in Figure 10-17.

CAUTIONS

1. Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.
2. Remeasure the width of the load after the load is placed on the 60K-Loader. Ensure the load has not shifted.



RIGGED LOAD DATA

Weight.....40,340 pounds

Maximum Weight.....40,800 pounds

Height.....101 1/2 inches

Width.....110 inches

Length310 inches

Overhang: Front.....0 inches
Rear.....22 inches

Center of Balance (CB)
(from front edge of the platform)122 inches

Extraction SystemEFTC

Figure 10-17. Deployable Universal Combat Earthmover (DEUCE), rigged on a 24-foot type V platform for low-velocity airdrop

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop

National Stock Number	Item	Quantity
1670-00-162-4982	Adapter, latch assembly, side plates, 11-inch (modified) (C-5 only)	2
8040-00-273-8713	Adhesive paste, 1-gal.	As required
4030-00-432-2516	Clevis, screw-pin, large	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	6
8305-00-242-3593	Cloth, cotton duck, 60-inches	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb.	As required
1670-00-434-5787	Coupling, airdrop extraction force transfer, w/20-ft. cable	1
1670-00-360-0328	Cover, clevis	9
8135-00-664-6958	Cushioning material (Cellulose padding)	As required
8305-00-958-3685	Felt, 1/2-inch thick	As required
1670-01-183-2678	Leaf, extraction line (line bag) (add 2 for C-17)	2
	Line extraction:	
1670-01-064-4454	60-foot (6-loop), type XXVI (for C-130)	1
1670-01-062-6312	120-foot (6-loop), type XXVI, (for C-5 between fuselage stations 1667-1971)	1
1670-01-062-6312	120-foot (6-loop), type XXVI and	1
1670-01-064-4454	60-foot (6-loop), type XXVI, (for C-5 between fuselage stations 947-1666)	1
1670-01-062-6312	120-foot (6-loop), type XXVI, (for C-5 between fuselage stations 574-947)	2
1670-01-468-9178	140-foot (6-loop), type XXVI (for C-17)	1
1670-01-064-4452	60-foot (1-loop), type XXVI (for C-17), (drogue line)	1
1670-00-783-5988	Link assembly, type IV (C-17 only)	1
	Link assembly, two-point:	
5306-00-435-8994	Bolt, 1-inch diameter, 4-inches long (add 4 for C-5)	4
5310-00-232-5165	Nut, 1-inch (add 4 for C-5)	4
1670-00-003-1954	Plate, side, 5 1/2-inch	4
5365-00-007-3414	Spacer, large (add 4 for C-5)	4
1670-00-006-2752	Link, four-point	1
	Lumber:	
5510-00-220-6146	2- by 4- by 11-inch	3
	2- by 4- by 24 1/4-inch	2
	2- by 4- by 30 3/4-inch	2
	2- by 4- by 41 3/4-inch	8

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
5510-00-220-6274	Lumber: 4- by 4- by 2 3/4-inch 4- by 4- by 7-inch 4- by 4- by 8-inch 4- by 4- by 11 1/4-inch 4- by 4- by 15 3/4-inch 4- by 4- by 19-inch 4- by 4- by 20-inch 4- by 4- by 48-inch	2 2 1 2 2 2 2 5
5315-00-010-4659	Nail, steel, common, 8D	As required
5315-00-753-3885	Nail, steel, common, 16D	As required
1670-00-753-3928	Pad, energy-dissipating (honeycomb) 3- by 36- by 96-inches 5- by 96-inch 11- by 96-inch 12- by 41 3/4-inch 14- by 16-inch 16 1/2- by 48-inch 22 1/2- by 10-inch 22 1/2- by 14-inch 22 1/2- by 18 1/2-inch 22 1/2- by 23-inch 22 1/2- by 27-inch 22 1/2- by 32-inch 22 1/2- by 36-inch 22 1/2- by 55-inch 22 1/2- by 96-inch 30 1/2- by 38 3/4-inch 33- by 38 3/4-inch 34- by 38 3/4-inch 35 1/2- by 38 3/4-inch 36- by 38 3/4-inch 36- by 41 3/4-inch 36- by 48-inch	35 sheets (2) (2) (7) (2) (4) (2) (2) (2) (2) (2) (2) (2) (2) (4) (4) (6) (2) (2) (2) (12) (7) (4)

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
1670-01-016-7841	Parachute, cargo, G-11C	8
	Parachute, cargo, extraction:	
1670-00-040-8135	28-ft.	2
1670-01-063-3715	15-ft. (C-17 only)	1
	Platform, airdrop, type V, 24-ft:	
1670-01-162-2372	Clevis assembly (type V)	(42)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-247-2389	Link, suspension bracket, type V	(2)
1670-01-162-2381	Tandem link assembly (Multipurpose link)	(2)
5530-00-128-4981	Plywood, 3/4-inch:	9 sheets
	2 3/4- by 48-inch	(1)
	3 1/2- by 11-inch	(3)
	3 1/2- by 19-inch	(2)
	14 3/4- by 8-inch	(1)
	14 3/4- by 26-inch	(1)
	21 1/4- by 48-inch	(1)
	24- by 51-inch	(4)
	2 7- by 25-inch	(1)
	2 7- by 34 1/4-inch	(1)
	32- by 8-inch	(1)
	34 1/4- by 24 1/4-inch	(2)
	38 3/4- by 51 1/4-inch	(2)
	41 3/4- by 48-inch	(4)
	48- by 52 1/2-inch	(1)
	55 3/4- by 19-inch	(1)
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop:	
1670-01-062-6306	3-ft. (4-loop), type XXVI	5
1670-01-062-6304	9-ft. (2-loop), type XXVI	1
1670-01-062-6310	11-ft. (4-loop), type XXVI	2
1670-01-062-6307	12-ft. (4-loop), type XXVI	2
1670-01-062-6308	16-ft. (4-loop), type XXVI	6
1670-01-062-6311	120-ft. (2-loop), type XXVI	8

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
5340-00-040-8219	Strap, parachute, release, multi-knife	2
7501-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-ft.	49
TBD	Towplate release mechanism (H-block) (C-17 only)	1
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-inch	As required
8305-00-260-6890	Nylon, type X	As required
8305-00-268-2455	Nylon, tubular, 1-inch, OD 7	As required

GLOSSARY

ACB	attitude control bar	ft	foot
AD	airdrop	gal	gallon
AFB	Air Force base	HQ	headquarters
AFR	Air Force regulation	in	inch
AFTO	Air Force technical order	LAPE	low-altitude parachute-extraction
attn	attention		
CB	center of balance	lb	pound
d	penny	LV	low-velocity
DA	Department of the Army	no	number
DC	District of Columbia	NSN	national stock number
DD	Department of Defense	OVM	operator vehicle maintenance
diam	diameter	psi	pounds per square inch
DEUCE	Deployable Universal Combat Earthmover	ROPS	roll-over protection structure
EFTA	extraction force transfer actuator	SL/CS	static line/connector strap
EFTC	extraction force transfer coupling	TBD	to be determined
FM	field manual	TM	technical manual
		TO	technical order
		TRADOC	United States Army Training and Doctrine Command
		US	United States
		w	with

REFERENCES

***AFJMAN 24-204/TM38-250/
NAVSUP PUB 505/MCO P 4030.19F/
DLAM 4145.3**

Packaging and Materials Handling: Preparing Hazardous Materials for Military Air Shipment. November 1994.

****FM 10-500-2/TO 13C7-1-5**

Airdrop of Supplies and Equipment: Rigging Airdrop Platforms. November 1990.

TM 5-2410-227-15

Operator's Organizational, Direct Support, General Support, and Depot Maintenance Manual: Tractor, Full Tracked, DED, 7500 lb Drawbar Pull Tractor w/ Dozer Blade, Backrip Scarifier (J. I. Case Model M450) (FSN 2410-935-0714) and Loader, Scoop Type w/ Fork Lift Attachment (J. I. Case Model M-450-L) (FSN 3805-131-462). December 1969.

TM 5-2410-231-10

Operator's Manual: Tractor, Full Tracked, Low Speed, DED, 16,000 to 24,900 lb Drawbar Pull, 60 Inch Min Gage, Sectionalized, Air Transportable (Caterpillar Model D5) (FSN 2410-828-6865). August 1968.

TM 10-1670-208-20&P

Organizational Maintenance Manual Including Repair Parts and Special Tools List for Platforms, Type II Modular and LAPES/Airdrop Modular. August 1978.

TM 10-1670-268-20&P

Organizational Maintenance Manual With Repair Parts and Special Tools List: Type V Platform. June 1986.

***AFJMAN24-204/TM38-250 has superseded AFR 71-4/TM 38-250 (15 January 1988). Change 3 reflects this change. The basic manual still references the superseded publication. You may wish to make pen and ink changes to update the old reference citations accordingly.**

****FM 10-500-2/TO 13C7-1-5 has superseded FM 10-500/TO 13C7-1-5 (15 January 1988). Change 3 reflects this change. The basic manual still references the superseded publication. You may wish to make pen and ink changes to update the old reference citations accordingly.**

***TM 10-1670-277-23&P/
TO 13C5-28-2/NAVAIR 13-1-30**

Unit and Intermediate DS Maintenance Manual
Including Repair Parts and Special Tools List for
Parachute, 28-foot Diam, Extraction. October 1990.

***TM 10-1670-278-23&P/
TO 13C5-26-2/NAVAIR 13-1-27/
TM 01109C-23&P/1**

Unit and Intermediate DS Maintenance Manual
Including Repair Parts and Special Tools List for
Parachute, 15-foot Diam, Extraction. November 1989.

***TM 10-1670-280-23&P/
TO 13C5-31-2/NAVAIR 13-1-31**

Unit and Intermediate DS Maintenance Manual
Including Repair Parts and Special Tools List for
Parachute, Cargo Type, G-11A, G-11B, and G-11C.
August 1991.

**TM 10-1670-286-20/
TO 13C5-2-41**

Unit Maintenance Manual for Sling/Extraction Line
Panel (Including Stowing Procedures). April 1986.

AFTO Form 22

Technical Order Publication Improvement Report

DA Form 2028

Recommended Changes to Publication and Blank
Forms. February 1974.

****Shippers Declaration for
Dangerous Goods**

Locally procured form.

***TM 10-1670-277-23&P, TM 10-1670-278-23&P, and TM 10-1670-280-23&P has superseded
TM 10-1670-215-20. Change 3 reflects this change. The basic manual still references this
superseded publication. You may wish to make pen and ink changes to update the old refer-
ence citations accordingly.**

****Shippers Declaration for Dangerous Goods has superseded DD Form 1387-2 (February
1982). Change 3 reflects this change. The basic manual still references the superseded
publication. You may wish to make pen and ink changes to update the old reference citations
accordingly.**